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Economic Report on the EU fish processing industry (STECF 23-14)

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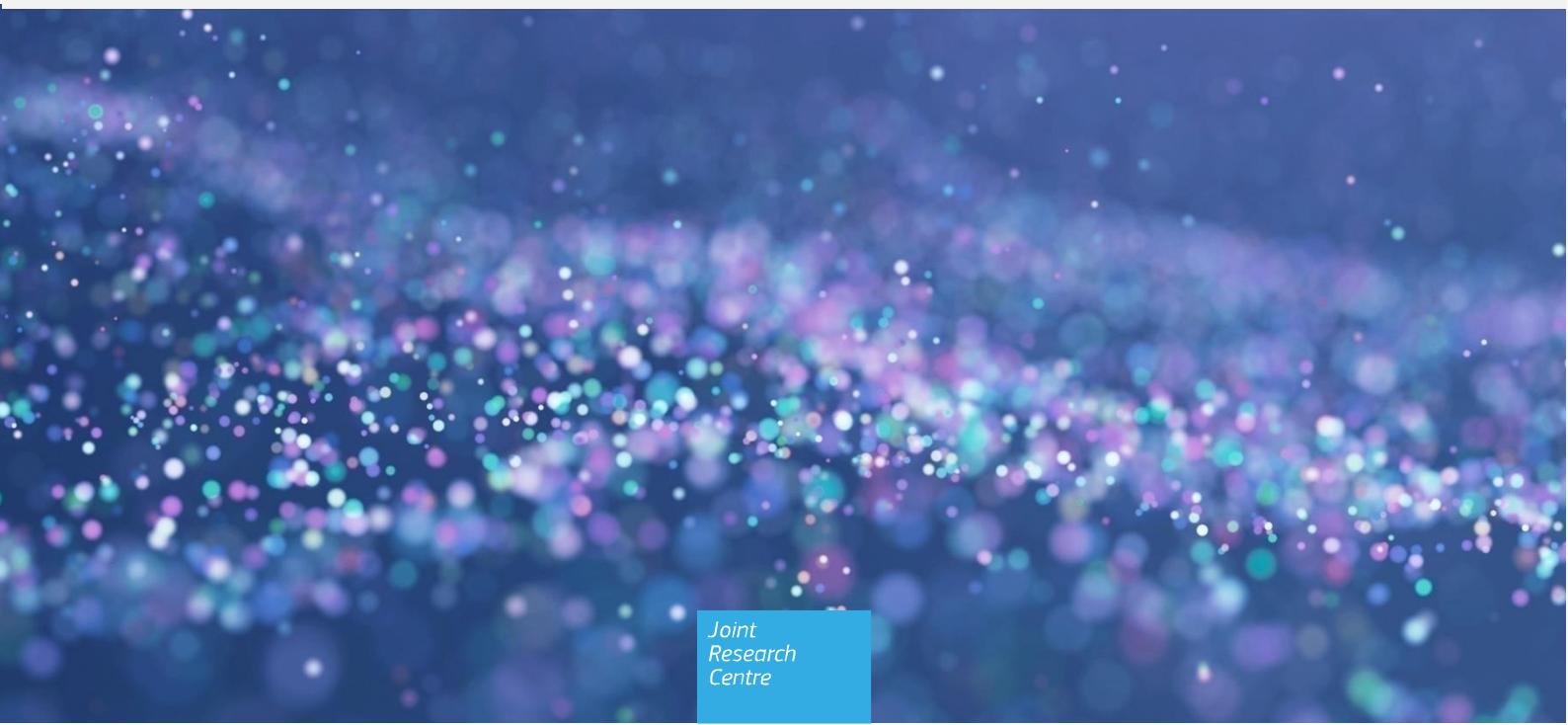

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CONTENTS

Abstract

Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries, C(2016) 1084, OJ C 74, 26.2.2016, p. 4–10. The Commission may consult the group on any matter relating to marine and fisheries biology, fishing gear technology, fisheries economics, fisheries governance, ecosystem effects of fisheries, aquaculture or similar disciplines. The 2023 Economic Report on the EU Fish Processing Sector provides a comprehensive overview of the latest information available on the structure and economic performance of the EU fish processing industry, from an economic and social point of view, updated at the year 2021.

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EWG-23-14 report:

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SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF) - Economic Report on the EU fish processing industry (STECF-23-14)

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

Overview of EWG 23-14

EWG 23-14 met virtually, between 23-27 October 2023, to produce the Economic report for the EU fish processing sector. The meeting was attended by 26 experts, 3 observers and 3 JRC experts.

The 2023 Economic report of the EU fish processing supersedes all previous reports. Comparisons with previous reports should not be made. This is mainly due to data corrections from Member States, the exclusion of the United Kingdom and the shift of the primary data source for some Member States from DCF/EU-MAP data to Eurostat data.

The report contains information on the number of enterprises, employment, income and costs. The profitability and performance of the sector is reported in terms of gross value added, profits (gross and net), profit margins and labour productivity. It covers the period 2013 to 2021 (including 2022 where available). The years 2008 to 2012 are excluded from this version of the report to improve readability. This exclusion does not diminish the analyses and quality of the report, since the main focus is on the most recent developments in the industry. Using 2013 as the first year aligns with the adoption of the latest CFP reform and the Annual Economic Report (AER) for fisheries. Furthermore, a full set of Croatian data is available from this year on. The data for the period 2008-2012 can still be found on the JRC website (https://stecf.jrc.ec.europa.eu/reports/economic).

Summary of the Main Findings

- The overall number of enterprises carrying out fish processing as main activity was equal to around 3,200 firms. In 2021, the industry generated a turnover of €29.4 billion and employed more than 111 thousand people (corresponding to 102 thousand full time equivalent (FTE)), the highest level over the period 2013-2021.
- SMEs (< 250 employees) make up 98% of the enterprises of which 86% are small-sized (< 50 employees) and more than half are micro-enterprises (< 10 employees). The distribution of enterprise by size-classes is different across MS. Finland, Slovenia, Sweden, Greece and Netherlands have more than 70% micro-enterprises. The highest shares of large industries (> 250 employees) are located in Poland, Lithuania and Romania.
- Spain has the largest number of enterprises (18% of the total) and has the highest share of turnover (26%) of the EU total. Italy is in second place, in terms of number of firms (14%), while France is the second largest in terms of turnover (17%).
- Over the period 2013-2021 there has been a decrease (-10%) of micro-enterprises (< 10 employees) and an increase of larger enterprises (> 50 employees). Furthermore, over the period 2013-2021 turnover is increasingly concentrating in enterprises with more than 50 employees. Micro-enterprises make up a smaller share of the total number of enterprises.

- Although there was a general increase in production costs, the increase in sales value was even higher resulting in a Gross Value Added (GVA), equal to EUR 5.7 billion, in 2021. This is an increase of 8% since 2019, but a decrease of 6% compared to 2020. Overall, the economic performance indicators reveal an upward economic trend in the sector over the period 2013 to 2021.
- The purchase of fish and raw material is the dominant cost item for the sector, accounting for more than 70% of the total production costs. Understanding which industry segments and MS rely on domestic raw material or imports (fisheries or aquaculture) is of importance to assess the strengths and vulnerabilities of the EU processing sector.
- In the light of the Farm to Fork strategy, it is important to track fish and aquaculture products along the value chain, from fishing grounds or farming area to the end market. Only eight Member States provided data on raw material. Based on these data, the most important species used were salmon, Alaskan pollock and herring representing 15.8%, 14.6% and 7.3%, respectively, of total raw materials used.
- Knowledge from experts highlighted that salmon is primarily imported from Norway and UK and is an aquaculture product. Alaskan pollock is originating from fisheries primarily imported from Norway and Russia or in the form of filet from China. Herring is originating from fisheries in the North Atlantic and is imported from Norway or landed by EU countries operating in the North Atlantic.
- In relation to the social aspects, the analysis revealed the importance of female labour in the fish processing industry covering 56% on average in the EU. The 40-64 age class made up the largest proportion (58%) of people employed in the processing industry and most employees hold a medium education. The vast majority (87%) of people employed in the sector are EU nationals of their own country.

STECF general comments

STECF reviewed the report and notes that EWG 23-14 was able to address all the ToRs assigned. However, STECF also notes that the analysis carried out by experts was impacted by the following data issues:

- 15 countries have delivered data according to their data collection programmes under the DCF/EUMAP (Collection of processing data is no longer a mandatory requirement under the DCF).
- Eurostat data was used to fill the gap for 10 countries not delivering data. However, Eurostat published the 2021 data on the last day of the EWG meeting. Data were then made available to the EWG, resulting in considerable work outside the meeting to complete the report.
- 8 countries delivered data on raw material based on their data collection programmes.
- There was a lack of homogeneity of data submitted, especially concerning raw material and social data.

STECF comments on data and procedure

STECF notes that when aggregating national indicators to obtain the EU totals, EWG 23-14 has paid special attention to maintain a homogeneous number of Member States and avoiding bias for EU totals over the years, by the inclusion (or exclusion) of other Member States, throughout the period analysed. The compilation of EU aggregates required the use of external sources (Eurostat/SBS data) and, for some variables, the use of an estimation protocol (approved by STECF 19-02, adapted by the EWG 21-14 and further adjusted by EWG 23-14).

STECF further observes that the EWG report includes a brief analysis for the 10 countries not delivering data under the DCF/EU-MAP. Exceptions are Cyprus and Luxembourg, for which no data was available from either source.

STECF notes that the analysis carried out by the EWG was strongly impacted by data issues. The lack of harmonised data on raw material is a major issue, as it is time consuming to make data comparable.

STECF notes that for raw material data to be meaningful, it should be collect by geographical origin and production environment.

STECF notes that, the EWG suggested that data is collected by type of activity, (e.g., filleting, freezing or canning). As an example, the analysis of energy costs has been limited by the availability of more disaggregated data allowing to better identify the cost structure of fish processing firms according to the different types of processing.

STECF comments on Impact of recent economic shocks

STECF observes that the impact of the Covid-19 pandemic was not as severe as initially expected in the 2021 report. In general, STECF observes that the analysis shows that the EU fish processing industry has been able to manage the impacts of the pandemic disruptions quite well and negative effects seem to be only a short-term effect. Despite a slight decrease of the overall EU turnover (-1%) in 2020, turnover increased 3% in 2021 compared to 2019. However, some processors were negatively affected, in particular those supplying fish to the Food Service sector (e.g., Hotels, Restaurants and Catering (HORECA). These enterprises were impacted significantly during 'lockdowns' introduced as a result of the pandemic.

STECF notes that since the beginning of 2022, the conflict in Ukraine has resulted in an increase in global energy prices. In the fish processing industry, energy constitutes a relatively small part of the total production cost (2% in 2021), hence the increase in energy price effect is also relatively small and has minor effects on the economic performance of the sector. Nevertheless, the projections carried out for 2022 and 2023 highlight that the impacts may differ substantially between Member States depending on the individual country's energy price regimes and subsidies in place.

STECF notes that the report indicates that, besides a direct impact on costs, the increase of energy prices is also likely to affect the price of commodities produced by the industry, in particular for frozen products. This increase will most likely be transferred to the consumers in the form of increased commodity prices.

STECF notes that the increase in energy prices can indirectly affect the sector through higher raw material prices (price effects from fisheries and aquaculture), which may be more important because raw material contributes more than 70% of the overall cost in the industry. Other effects of the conflict have been a shortage of some raw material coming from Russia and Ukraine. An example of this is higher prices for whitefish (e.g. cod, saithe, haddock) due to increasing tariffs or bans on the import of Russian seafood. Other factors, such as the increasing inflation post covid-19, have played an additional role in raw material price increases.

STECF notes that the impact of Brexit is still an issue that continues to affect the supply of raw material due to decreased landings by EU vessels following quota transfers to the UK under the Trade and Cooperation Agreement (TCA). Processors have also been impacted by changes in the trading arrangements between Member States and the UK, leading to increases in logistics costs and 'red tape'. This is especially the case for countries dependent on importing and exporting raw material to and from the UK (e.g., Ireland, Denmark and the Netherlands) as well as EU vessels operating in UK waters under UK regulations.

STECF conclusions

STECF concludes that all terms of reference were successfully addressed by EWG 23-14, noting the data issues highlighted and the lack of homogeneity between the data submitted, especially concerning raw material and social data.

Data and procedure

STECF concludes that the report on the economic performance of the fish processing industry provides a comprehensive overview of the most recent information available on the structure and economic performance of the EU fish processing industry.

STECF concludes that the analysis on the raw material going into the processing industry comes from only 8 countries. STECF reiterates its previous conclusion from PLEN 21-01 that it is difficult to obtain this data from Member States, due to the complexities in deriving this information directly from industry. Therefore, STECF suggests DG MARE should decide whether the collection of data on raw materials is essential for the report.

STECF concludes that by continuing to use the Eurostat data for countries not providing data under the DCF/EU-MAP, the report offers a more comprehensive picture of the EU fish processing sector. However, STECF acknowledges that the late publication of the 2021 Eurostat data puts extra pressure on the EWG, limiting the time for deeper economic analysis at the meeting. The time of release of EUROSTAT data should be considered when planning the next EWG meeting for the processing industry. Preferable the EWG should be scheduled later in the year (e.g. November/December).

Recent economic shocks

STECF concludes that impacts from the COVID-19 pandemic on the processing industry had a short-term effect in the year 2020 and far less than expected in 2021. The processing industry appears quite resilient to adapt to such kind of shocks within the value chain.

STECF concludes that the direct effect of increasing energy costs will only affect the industry to a minor extent seeing that only 2% of the total cost is used for energy consumption. However, indirect effects resulting from increasing raw material costs, which constitute more than 70% of the total cost, may have a larger impact on the industry's profitability. This will depend on how much of this increase in prices can be passed on to consumers.

STECF concludes that the impact of Brexit is still an issue and can affect the availability of raw materials and changed trading conditions leading to higher logistics costs and more 'red tape'.

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[1] - Information on STECF members' affiliations is displayed for information only. In any case, Members of the STECF shall act independently. In the context of the STECF work, the committee members do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: http://stecf.jrc.ec.europa.eu/adm-declarations

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REPORT TO THE STECF

EXPERT WORKING GROUP ON Economic Report on the EU fish processing industry (EWG-23-14)

Virtual meeting, 23-27 October 2023

This report does not necessarily reflect the view of the STECF and the European Commission and in no way anticipates the Commission's future policy in this area

1 INTRODUCTION

This report summarises the work carried out by the STECF EWG 23-14 meeting virtually on October, 23th-27th to draft the 2023 Economic Report on the EU Fish Processing Sector. The EWG was composed of 26 experts, 3 observers, the JRC team (4 persons) and one DG-MARE representative.

The **2023 Economic Report on the EU Fish Processing Sector** provides a comprehensive overview of the latest information available on the structure and economic performance of the EU fish processing industry, from an economic and social point of view, updated at the **year 2021** (for some countries at 2020).

The report covers the period starting with the year 2013 and includes information on the EU fish processing industries in terms of number of enterprises, employment, income and costs. The profitability and performance of the sector is also reported in terms of gross value added, profits, profit margins and labour productivity.

For the third time, the analysis of the **socio-demographic aspects** of the labour forces employed by the EU fish processing industries has been provided, in terms of gender, age, nationality and educational aspects.

The report provides an **in-depth look of the different factors affecting the economic performance** of the EU fish processing industry with a special focus on the major drivers and issues affecting the sector and gives insight on the main factors influencing the industry's economic performance in the period covered by the data series but also trying to provide an outlook on the most recent years, relying on the experts' knowledge and information already available for the sector as a whole (including insights on the link with the import and export flows, market prices and consumption trends). The impact of some phenomena (e.g. Covid-19) whose effects where only anticipated in the previous report, have been analysed looking at data available for this report.

In line with the ToRs, the report has also tried to anticipate the **impact that the energy crisis** could have generated on the fish processing sector of the main EU countries. Taking into account that the data submitted by MSs (as well as complementary used ESTAT data) do not cover the "energy crisis" period (starting in 2021), the section has been based on the analysis of the energy prices, on the cost structure of the selected countries as well as on the trends of imports and export of selected commodities.

Given that under the new EU-MAP, the transmission of data about the fish processing sector is only done on a voluntarily basis, **complementary source of data** (e.g. Structural Business Statistics and Prodcom from Eurostat) was used for some countries (in line with what suggested by the EWG drafting the 2017 report and already implemented by the STECF/EWGs for the draft of the 2019 and 2021 report).

Furthermore, for the second time and in line with the approach used for the 2019 and 2021 report, the data for EU totals represent the **complete picture of the EU fish processing sector** as they are not biased by the inclusion (or exclusion) of some Member States, throughout the analysed period (mainly due to the voluntarily of the data collection for the fish processing sector under EUMAP). The protocol approved by STECF 19-02 and adapted by the EWG 21-14 has furtherly been adjusted by EWG 23-14. The compilation of EU aggregates required the use external sources (Eurostat/SBS) to cover the lack of data for a) for some MS committed to data delivering under DCF/EUMAP but submitting not complete data series; b) for MS not (or no more) committed to deliver data under DCF/EUMAP[1]. Thanks to this, the EU overview analysis is based on the aggregation of a full dataset of 25 Member States, providing the main socio-economic indicators for the sector. It is worth noting, nevertheless, that an in-depth analysis of the economic performance of the EU fish processing sector has been possible only for the group of DCF/EUMAP MSs, because of the more detailed level of variables covered by the DCF/EUMAP in comparison to the Eurostat/SBS framework. It is also important to highlight that even if the report has largely benefited of this methodological approach, **a lot of time was spent prior and during the**

[1] For details, see Annex 9.

meeting, for cross-checking the two datasets (DCF/EUMAP and Eurostat/SBS) and to provide consistent and coherent indicators also because this year Eurostat/SBS data for the year 2021 were released only on the last day of the meeting, hindering the possibility to finalise the national chapters of MSs based on these data and, most importantly, the EU overview analysis.

For the third time, after the 2021 report, and with the aim of providing a real EU overview of the sector, the report includes also a brief analysis, at country level, for Member States involved in data collection under EUMAP, but not collecting data for the fish processing sector because of a very small sized industry (i.e. Austria, Czech Republic, Hungary and Slovakia). For these countries and for those no more submitting data because of the voluntarily of the data collection (Estonia, France, Latvia, Ireland, Netherlands and Portugal), the national chapters are built on a bit different format as graphs and tables are based also or exclusively on Eurostat (Structural Business Statistics) data, for the description of the main economic indicators.

The purchase of **fish and raw material** is the dominant cost item for the sector, accounting for more than 70% of the total production costs, increasing over time mostly because of the high dependence from imports. Understanding which segments and Member States use domestic raw material (either from wild fisheries or from aquaculture) and which ones depend on imported supplies and on which species is of high importance for assessing the strengths and vulnerabilities of the sector as well as its sustainability. The 2021 report already dealt with a first analysis of the data on the volume of raw material collected during the 2021 data call, highlighting the low coverage and high heterogeneity of the data collection. Nevertheless, in the light of the Farm to fork Strategy and of the process of revision of the marketing standards, the STECF plenary concluded that, even if not easy to be implemented and sometimes costly, this data collection is of high importance for the sector as it helps to track FAP products along the value chain, from the fishing area (for fishery products) or farming plants (for aquaculture one) till market outlets. For this reason, an attempt to look further at the data in terms of raw material in volume by species and origin collected by MSs during the 2023 data call has been made during the EWG meeting and reported in the present document.

The report is structured as follow:

- An overview of the economic performance of the EU fish processing industry, with specific sections on the structural aspects, on economic data and performance indicators (e.g. revenue items, cost items, earnings, profitability, etc.)
- A section on the use of raw materials in terms of volume by species and origin at EU level (with some country details)
- A section on socio-demographic indicators at EU level with some country details (e.g. employment by gender, labour productivity and average salaries, education level, nationality, etc.).
- A special chapter on the impact of energy crisis on the sector
- National chapters on the economic performance of the fish processing industry at Member States level (including national socio-demographic section as well as raw material details)
- Annexes containing the main details of the datasets used (DCF/EUMAP and Eurostat/SBS), the checks on data submitted, the glossary of the main variables and indicators.

The 2023 Fish processing economic report supersedes all previous reports. Comparisons across reports should not be made. This is mainly due to the inclusion of more Member State, the exclusion of the United Kingdom and the shift of some MSs from the DCF/EUMAP group to the ESTAT/SBS group.

1.1 Terms of Reference for EWG-23-14

Background and objectives

The economic report on the fish processing industry is one of the main sources of economic and social data for scientific advice on the performance of the EU fish processing industry. It is also increasingly used by scientific bodies, national administrations and international institutions.

Following the 2023 DCF/EU-MAP call for economic data on the EU fish processing sector, the EWG is requested to analyse and comment on the economic performance of the EU and national fish processing sector between 2008 and 2021 (2022 when available).

Specifically, the EWG is requested to analyse the processing sector in respect of the following factors:

- Competitiveness,
- Market prices and consumption,
- Certification,
- Innovation,
- Links and level of dependency with the local fishing fleet and aquaculture sector,
- The role of European Maritime Fisheries Fund support; and
- Contribution to the local communities and the Blue Economy.

Given the importance of this activity in many communities, the social aspects should be taken into consideration. Based on the available data, a social analysis should be provided, including employment trends, salaries, labour productivity as well as a breakdown of the fish processing employment by gender, education level and nationality (nationals, EU nationals, non-EU nationals).

The report should provide an in-depth look at the different factors affecting the economic performance of the EU fish processing industry with a special focus on the major drivers and issues affecting the sector (in particular the spike in energy costs associated with the Russian invasion of Ukraine and inflation along the value chain). The EWG is also requested to carry out an analysis of the source of raw material by species and origin (i.e., EU or non-EU).

In addition to interpreting and explaining the quantitative results, the report should contain qualitative information and analysis on the drivers and trends in performance and other aspects of policy relevance based largely on expert knowledge. The main objective of the report is to obtain high quality interpretation of all data outputs to ensure the usefulness of the report for DG MARE's policy development, Member States and the industry.

Structure and content

The EWG is requested to provide:

- An **overview of the economic performance of the EU fish processing industry**. The latest developments should be presented in annual terms and not with respect to the previous report), including a comparison across Member States highlighting the differences and similarities of national industries. This should include the drivers and main trends based on expert knowledge. It must include specific sections on:
    - EU fish processing sector overview (including recent developments).
    - Economic data and performance indicators (e.g., revenue items, cost items, earnings, profitability, etc.), including a comparison of company size (e.g., SMEs vs. non-SMEs), where possible.
    - Employment and social indicators (e.g., employment by gender, labour productivity and average salaries, education level, nationality, etc.).
    - Outlook for 2022

- **National chapters** on the economic performance of the fish processing industry providing[2]:
  - National fish processing sector overview (including recent developments).
  - Economic performance indicators, including by size category (e.g. contrasting SMEs and non-SMEs when possible).
  - Employment and social indicators (e.g. employment by gender, labour productivity and average salaries, education level, nationality, etc.).
  - Description of trends and drivers based on expert knowledge.
  - Outlook.
- **Annexes**
  - Data coverage and quality.
- An **executive summary** containing the key findings should also be provided.

Streamlining of the report and data issues

Efforts should also be invested in streamlining the structure and content of the report. In particular, the following should be considered:

- If there are specific (sub)sections that provide limited value and therefore could be dropped from the report.
- Whether the narrative adds value to the figures compiled in the charts and tables. This could be achieved by highlighting a few figures with special relevance and by describing the drivers and/or consequences.
- Whether the main socio-economic indicators, if possible and where relevant are in context with homologous figures at the EU and national levels (e.g., national average salaries, GDP, etc.), or in relation with the other fisheries sectors (the fishing fleet and aquaculture).
- Given that under the EU-MAP, the transmission of data about the fish processing sector is only requested on a voluntarily basis, the use of complementary sources of data (e.g., SBS and PRODCOM from Eurostat) may be required for some countries.

When aggregating national indicators to obtain the EU totals, special attention should be made to maintain a homogeneous number of Member States. The data for EU totals should reflect an estimation of the actual evolution and should not be distorted by the inclusion (or exclusion) of Member States throughout the analysed period. The compilation of EU aggregates may require the use of imputation in the case of some Member States. The imputation of missing values should follow the principles advised by the STECF plenary (PLEN 19-02).

The economic report on the fish processing industry is produced on a biennial basis. This should be considered when presenting and interpreting the information and data. Besides the long-term evolution analysis, a special focus should be made not only on the last year, but rather on the last two years, where relevant.

Indications on the latest developments should be presented in annual terms and not with respect to the previous report (which implies an increase or decrease over two years). The report should also present indications on the evolution compared with the base year.

A discussion and explanation of data coverage issues and how they were addressed should be included as an Annex.

[2] Given the use of EUMAP as well as Eurostat data, it should be clearly identified the source of data. A more detailed discussion about data coverage and quality issues could be included in an Annex.

Data transmission

As a matter of priority, the EWG is requested to ensure that all unresolved data transmission (DT) issues encountered prior to and during the EWG meeting are reported on-line via the Data Transmission Monitoring Tool (DTMT)[3]. Guidance on precisely what should be inserted in the DTMT, log-on credentials and access rights will be provided during the EWG.

[3] For details refer to ToR 7.1. In July 2021 (PLEN 21-02) and following that in March 2023 (PLEN 23-01) the guidance was updated https://stecf.jrc.ec.europa.eu/documents/43805/2598938/EWG+19-18+-+DTMT+Guidance+version+30+May+2019.pdf/b00741aaa483-40b5-b4fc-b5557cb8d690.

2 EU OVERVIEW

This chapter provides an overview of the structure and economic performance of the fish processing industry in the EU from 2013 to 2021. The chapter summarises the number of enterprises, their size, the employment they provide, and trends in these variables for the EU as a whole and at MS level. A comparison of average salaries and labour productivity (a measure of the capital intensity of production) are given for the MS. Summaries for the EU are reported for the main financial variables, including turnover, subsidies, profits and gross value added as a social contribution are included.

The 2023 report has attempted to give a comprehensive overview of the EU fish processing industry, including in the analysis all the EU MSs with a fish processing sector. Relevant figures are given for all EU countries, including countries involved in data collection under DCF and currently EUMAP (DCF/EUMAP MSs) but also those countries never or not still involved in the data collection for the fish processing industry (NO DCF MSs) – for details see notes under Table 3.1.

The main economic analysis is, instead, focusing on the EU in its formation at 25 countries, while some in-depth considerations are provided only for the group of DCF/EUMAP MSs, because of the more detailed level of variables covered by the DCF/EUMAP in comparison to the Eurostat/SBS framework. An explanation of the protocol for data use and imputation to overcome problems with missing or mistaken data, and other data issues is provided in Annex 9.4.

The overview of the sector at EU level is carried out looking, where possible, at comparison across MSs, highlighting the main reasons of relevant differences.

2.1 Overview of the EU fish processing industry

In 2021, the overall number of enterprises carrying out fish processing as a main activity was equal to around 3 200 firms. The overall turnover produced by the sector is estimated at EUR 29.4 billion (Table 3.1).

Table 2.1 EU fish processing industry sector overview, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
*Total enterprises **	3.413	3.255	3.417	3.405	3.218	3.119	3.049	3.203	3.219	0%
≤10 employees	2.072	1.959	2.110	2.025	1.919	1.868	1.720	1.856	1.869	1%
11-49 employees	930	884	896	938	886	832	885	918	913	-1%
50-249 employees	350	353	352	383	357	359	381	366	371	1%
≥250 employees	61	59	59	59	56	60	63	63	66	5%
Employment (number)										0%
Total employees	100.066	101.185	101.275	105.397	102.965	105.227	109.754	109.107	111.604	2%
FTE	89.318	91.231	91.442	95.561	93.343	95.946	99.408	97.769	101.968	4%
Indicators										
Turnover (million €)	22.391	22.408	23.448	25.242	26.458	26.963	28.411	28.087	29.359	5%
FTE per enterprise	26,2	28,0	26,8	28,1	29,0	30,8	32,6	30,5	31,7	4%
Average wage (thousand €)	26,4	26,3	26,3	27,2	28,4	23,0	30,2	31,2	31,2	0%
Value of unpaid work (% on total)**	2,2%	2,9%	1,6%	1,7%	1,5%	2,0%	1,4%	1,3%	2,8%	111%
Enterprises doing fish processing not as main activity*										
Number of entreprises	635	654	679	687	664	662	628	737	765	4%
Turnover attributed to fish processing (mill	841	964	985	997	1.035	988	1.034	1.374	1.298	-5%

Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS
* Czechia number of enterprises not available by size classes. 2021 data used for Sweden, Hungary, Irland and Slovakia not perfectly homogenous with DCF/EUMAP size classes
**only on DCF countries

Spain is the leading country, with the 18% of firms and the 26% of the EU turnover. Italy is in second place, in terms of number of active firms (14%), while France is in second place in terms

of turnover produced by the sector (17%). When looking at the employment generated by the sector, Spain is still the top country (27%) followed by Poland that, due to the large size of its processing plants, covers 20% of the overall EU employment in the sector (Table 3.2).

Table 2.2 Number of enterprises, employment and turnover in the fish processing sector by EU countries, 2021

Country	Number of enterprises	enterpises %	Turnover (million €)	turnover %	Total employment	employment %
Belgium	64	2%	941	3%	1.328	1%
Bulgaria	70	2%	133	0%	2.534	3%
Croatia	33	1%	139	0%	2.229	2%
Denmark	90	3%	2.347	8%	3.196	3%
Finland	123	4%	424	1%	1.084	1%
Germany	210	6%	1.906	6%	6.143	6%
Greece	169	5%	269	1%	2.500	3%
Italy	467	*14%*	2.482	*8%*	6.585	*7%*
Lithuania	45	1%	571	2%	5.153	5%
Malta	7	0%	47	0%	112	0%
Poland	159	5%	3.423	12%	19.561	20%
Romania	18	1%	135	0%	1.182	1%
Slovenia	17	1%	42	0%	116	0%
Spain	604	18%	7.498	26%	26.042	27%
Sweden	206	6%	475	2%	1.740	2%
Sub-total EU MSs DCF	**2.282**	**69%**	**20.832**	**71%**	**79.505**	**82%**
Austria	8	0%	46	0%	157	0%
Czechia	20	1%	120	0%	792	1%
Estonia	79	2%	181	1%	1.391	1%
France	369	11%	4.907	17%	12.824	13%
Hungary	17	1%	10	0%	321	0%
Ireland	108	3%	571	2%	2.384	2%
Latvia	96	3%	238	1%	2.643	3%
Netherlands	159	5%	1.047	4%	3.086	3%
Portugal	157	5%	1.365	5%	8.433	9%
Slovakia	4	0%	42	0%	357	0%
Non-DCF MSs	*1.017*	*31%*	*8.527*	*29%*	*17.869*	*18%*
Total EU	**3.299**	**100%**	**29.359**	**100%**	**97.374**	**100%**

Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS

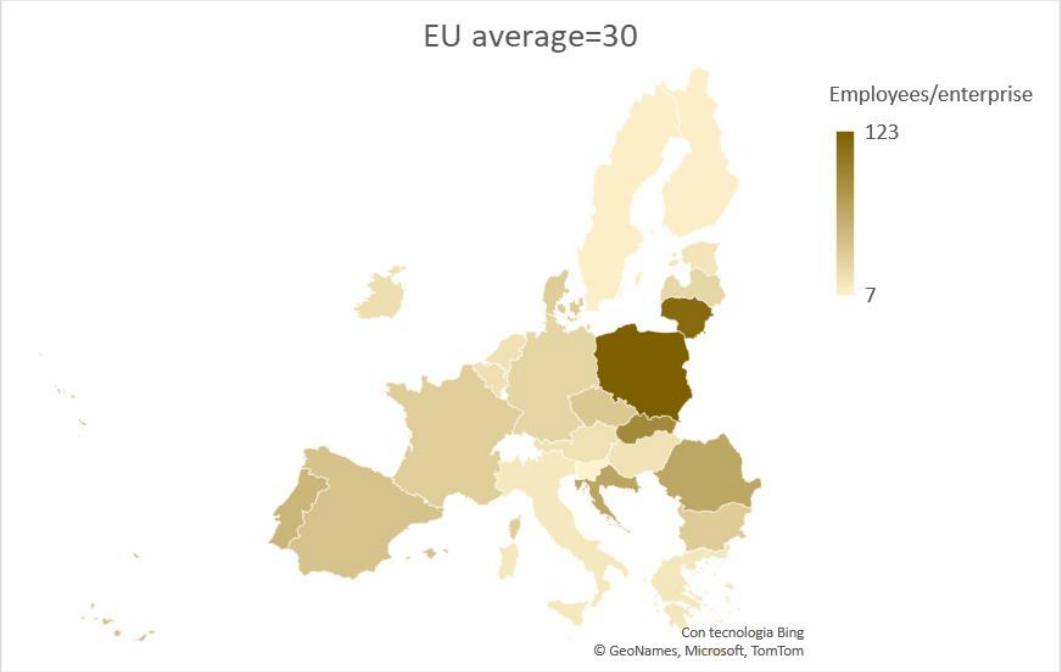
Notes: 1) DCF EU MSs: EU MS covered by obligation under DCF/EUMAP and submitting countries under the 2021 data call. France excluded in this group because of missing data; 2) NO DCF (SBS) MSs: EU MSs not covered by obligation under DCF/EUMAP but having a fish processing industry, namely Austria, Czechia, Estonia, France, Hungary, Ireland, Latvia, Netherlands, Portugal and Slovakia, for which Eurostat/SBS data have been used.

At EU level, the average, size of the fish processing enterprises is around 30 employees, more or less in line with the average size detected for a similar sector, e.g. meat processing one (27 employees per enterprise, NACE 10.10) but almost double of the average size detected for the whole food processing sector (14 employees per enterprise for the manufacturing of food products).

If the EU average is around 30 persons employed per enterprises, fish processing enterprises are largely different across EU in terms of labour intensity: there are some Eastern countries, with Poland and Lithuania at the top with, respectively, 123 and 115 employees per enterprises. All the

other countries are characterised by a lower intensity of human capital: Romania and Croatia follow with employment per firm at, respectively, 66 and 68 units. Beside a large number of countries with medium-high values, there are countries where small-sized plants prevail, as Finland, Sweden and Slovenia, with an average of 9 units per firm (Figure 3.1).

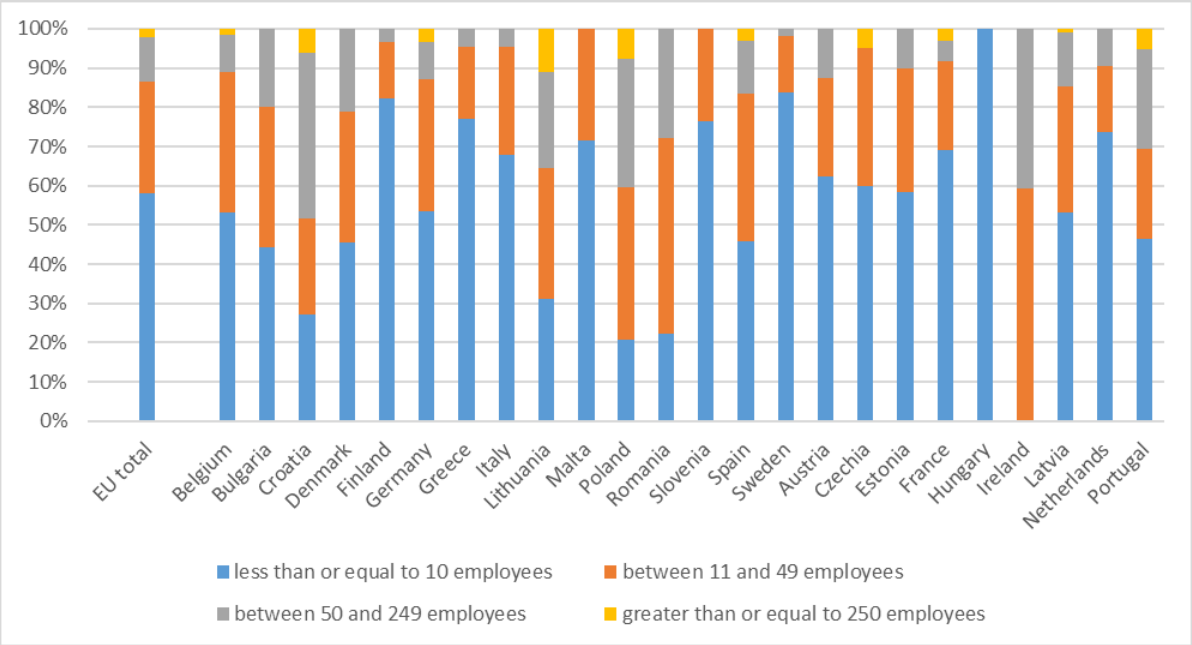
Figure 2.1 Number of employees per enterprise by country, 2021



Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS.

At EU average, indeed, the great bulk of enterprises (98%) of the sector are SMEs (less than 250 employees), 86% are small-sized (less than 50 employees) and more than a half are micro-enterprises (Figure 3.2). The distribution of enterprise by size-classes confirms that there are large differences across MSs, with Finland, Slovenia, Sweden, Greece and Netherlands having a fish processing sector characterised by more than 70 of micro-enterprises. The highest share of firms with 50-249 employees is recorded for Croatia while the highest shares of large industries (above 250 employees) are located in Eastern Europe (e.g. Poland, Lithuania and Romania).

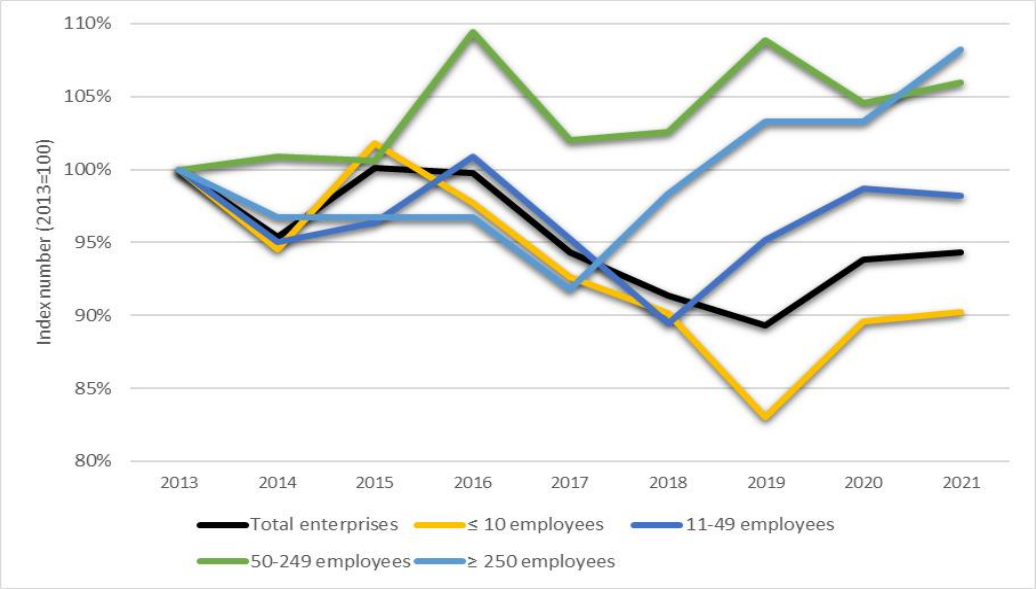
Figure 2.2 Number of firms by country and by size classes, 2021



Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS.
Notes: Czechia number of enterprises not available by size classes. 2021 data used for Sweden, Hungary, Ireland and Slovakia not perfectly homogenous with DCF/EUMAP size classes (for details see the methodological annex)

Looking at the trend of the total number of firms, a slightly decrease emerges over the 2013 (-6%) period, with a peak in 2015/2016, a decreasing trend until 2019 and, in the last two years (2020 and 2021) a general increase of +6% (figure 3.3), mainly due to the increase in the number of micro-enterprises (<= 10 employees; +9%).

Figure 2.3 Trend of the numbers of firms, total and by size classes, 2013-2021 (index number, 2013 =100).



Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS

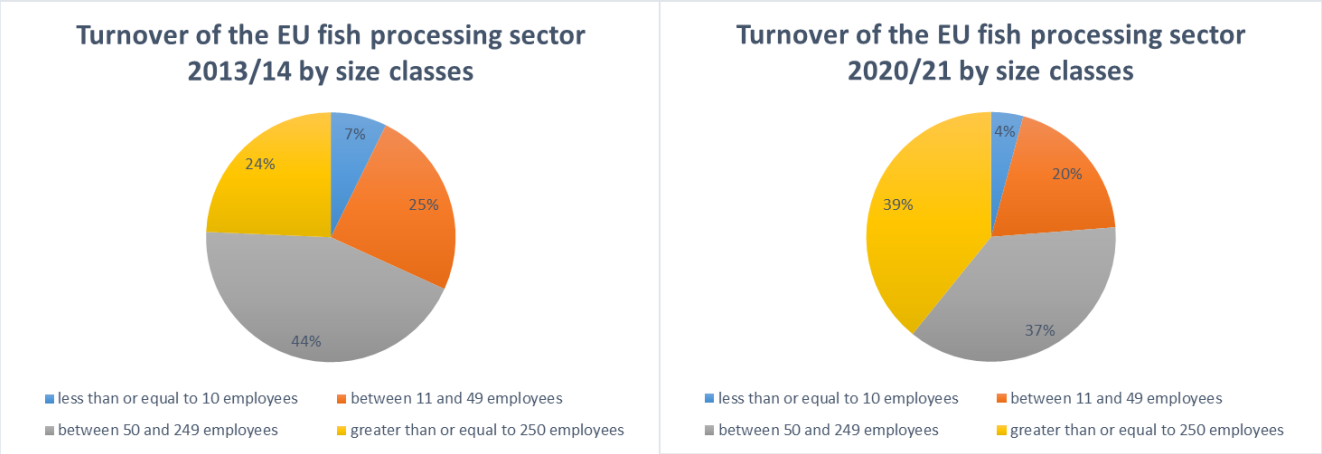
When analysing the trend by size classes over the period 2013-2021, a general decrease (-10%) of the micro-enterprises (>=10 employees) is registered while, on the opposite side, the number

of larger enterprises (>50 employees) appear to be increasing, even if with an erratic trend +6% (2021 vs. 2013) the growth rate for enterprises with employees between 50 and 250, +8% for the biggest enterprises (>250 employees).

Turnover increases in 2021 compared to 2020, reaching the highest level since 2013 (table 3.1 and figure 3.4); the increase is directly linked to the trend observed in the number of enterprises as well as on the consumer prices; another positive factor affecting the EU fish processing performance in the last two years is the increase in domestic consumption. In 2021, household expenditure on fishery and aquaculture products in the EU-27 grew 7% from 2020, continuing the rising trend already registered between 2019 and 2020; according to Euromonitor estimates, also sales of processed fish through the HORECA sector started to recover in 2021, increasing by 15% from 2020 (EUMOFA, 2022). The increase in turnover in 2021 has also to be attribute to the inflation detected for the prices of fishery products, starting to increase in the second half of 2021 - for details see section 3.3.

The increase of bigger enterprises in parallel with the increase of turnover highlights a phenomenon of re-sizing of the sector and concentration of production, also testified by the concentration of turnover on enterprise with more than 50 employees (Figure 3.4)

Figure 2.4 Turnover by size classes, 2013/14 and 2020/21



Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call. *Notes: based only on DCF/EUMAP EU MSs because of lack of figure, for confidentiality reasons, for some size classes on Estat data*

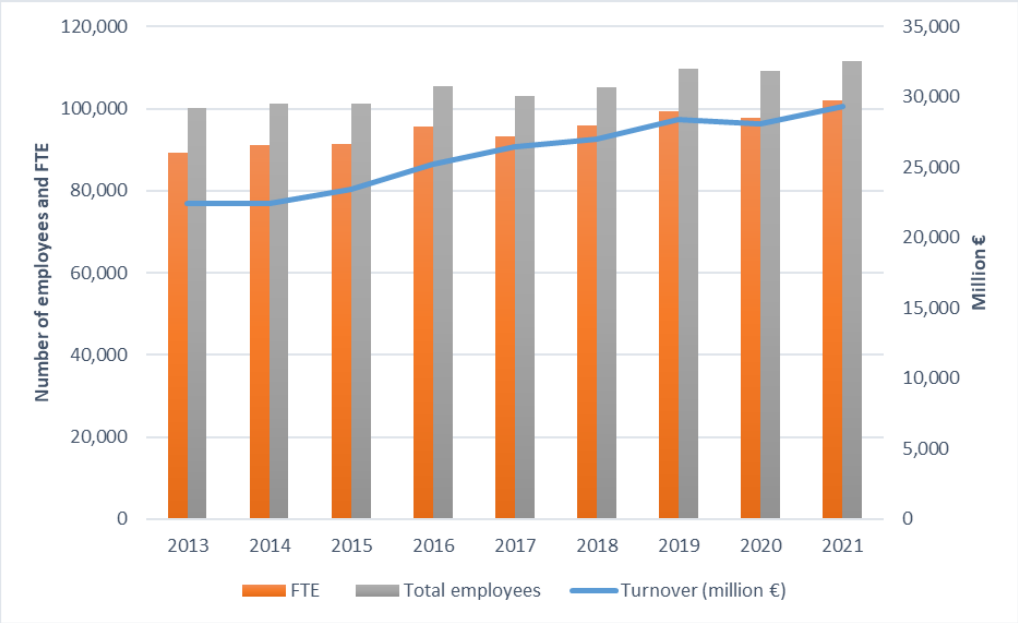
In 2021, employment level, both in terms of number of persons employed and in terms of full-time equivalent units (FTE), is at the highest level over the period 2013-2021: around 112 thousand jobs equivalent to 101 thousand FTEs (Table 3.1; Figure 3.5).

The average wage paid by the sector (measured as personnel costs per FTE unit) was around EUR 31 thousand, increasing by +3% vs the level of 2019 and +18% vs. 2013, impacted by the improving economic performance of the sector (for details see next paragraph).

2021 data on personnel costs and employment by countries suggest that the average level of remuneration of the labour force (wage per FTE) varies substantially by MSs (Figure 3.6).

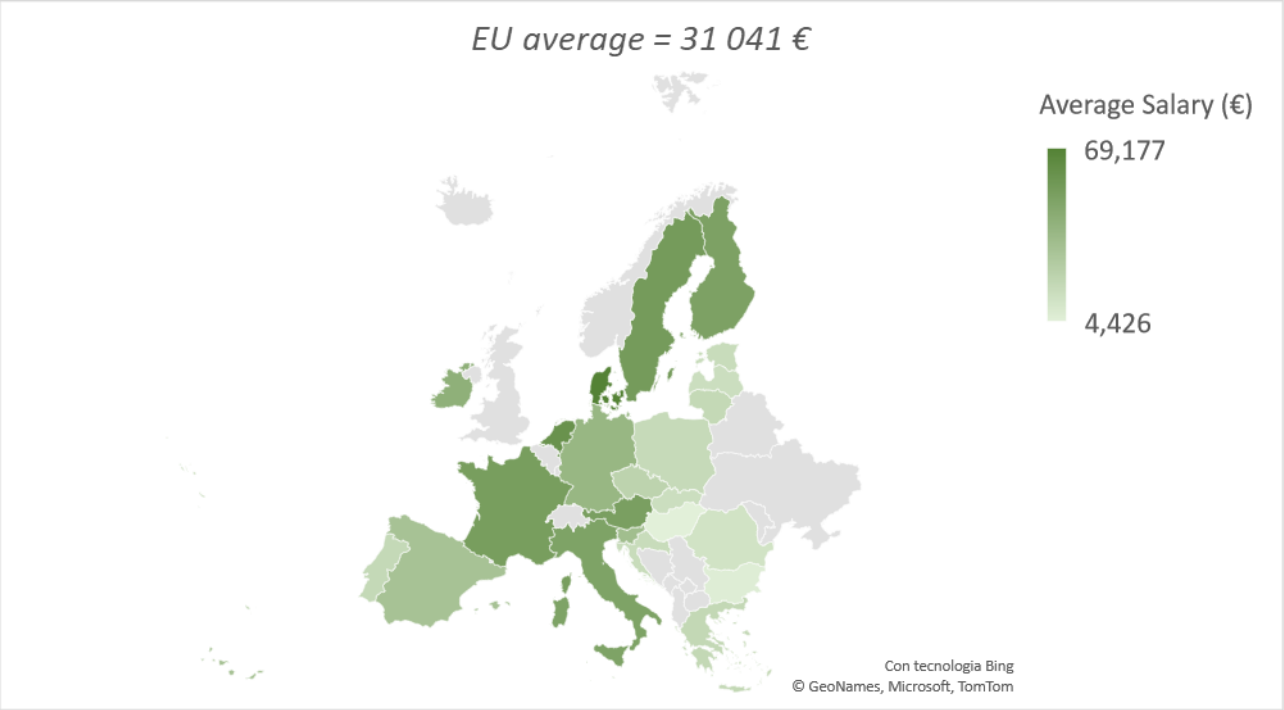
The EU average is around EUR 31 thousand. The Danish fish processing industries record the highest remuneration (EUR 69 thousand), followed by the Dutch, Swedish and French industries (around EUR 53-60 thousand). Most of the Eastern countries (Latvia, Lithuania, Poland, Czechia, Estonia) together with Greece and Poland record an average salary between EUR 10 and 20 thousand while Bulgaria and Hungary stay at the lowest level (above EUR 6 thousand).

Figure 2.5 Trend of total employment, FTE and turnover, 2013-2021



Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS.

Figure 2.5 Average salary by country, 2021

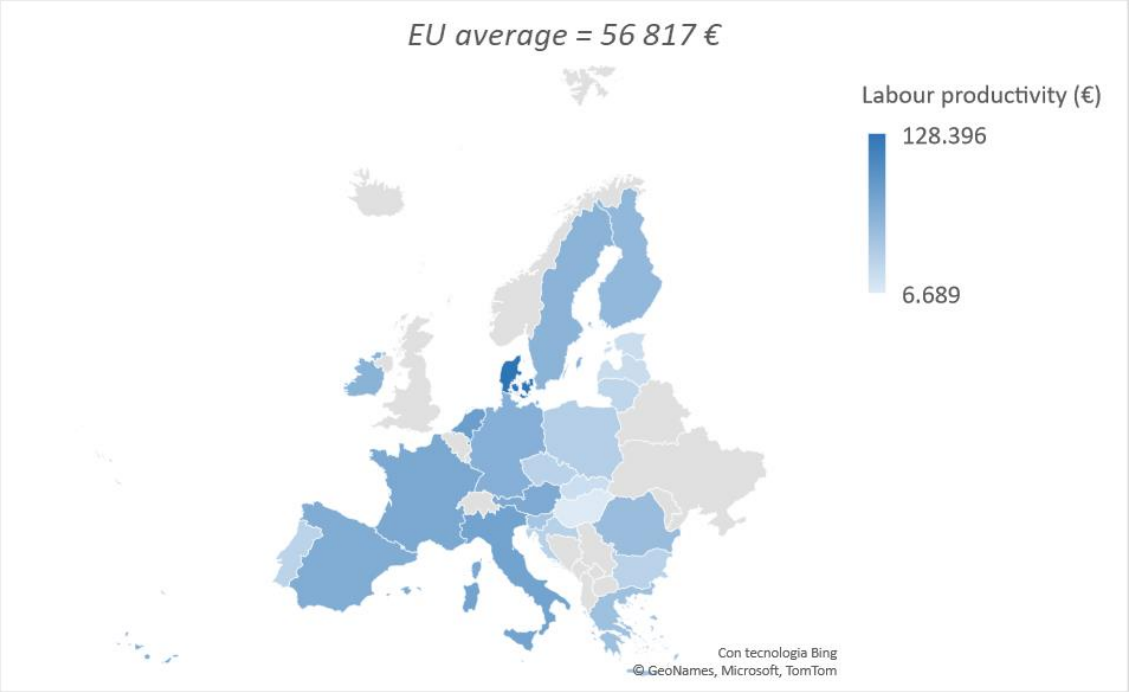


Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS. Ireland 2020; Belgium not included.

The labour productivity of the EU fish processing industries, measured as the GVA produced by a unit of labour (FTE) was on average EUR 56.8 thousand.

Again, large differences emerge across EU with only one country having a level above EUR 100 thousand: Danish industries is in 1st place both in terms of average salary and of GVA per FTE (EUR 128 thousand). Most of the Central EU counties record a labour productivity among EUR 50 and 100 thousand, while Eastern EU countries report lower level with Estonia and Latvia under the EUR 20 thousand level – Figure 3.7.

Figure 2.6 Labour productivity by country, 2021



Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS. Ireland 2020; Belgium not included.

The DCF/EUMAP framework requires MSs to provide the number and the turnover of enterprises carrying out fish processing as a secondary activity ("non-main"). The number of enterprises processing fish products integrated with other activities (in many cases other types of food processing) is estimated (and only for DCF/EUMAP MSs) to be equal to 765 units[4]. It is well known that the share of the turnover attributable to the processing of fish and fish products coming from these enterprises can be substantial. It is estimated to be EUR 1.3 billion (4% of the total turnover of the sector in 2021) – Table 3.1.

Among reporting countries, those with the highest number of enterprises processing fish and fish products as secondary activity, are Italy and Germany.

2.2 Economic performance

The total income, including turnover and other incomes, amounted to EUR 30.6 billion in 2021, a slight increase compared to 2020 (+5%) and 2019 (+4%). The increase in the total turnover over the last two years have also resulted in an increase in the number of enterprises (+3% 2021 vs. 2019) as well as to the price of commodities produced by EU fish processing industries (for details see section 3.3 on the main drivers of change).

An increasing trend over the 2013-2021 period is recorded for all the main cost items.

As far as the purchase of goods and services (including raw materials and energy costs), the trend of this cost item appears to be almost stable between 2019 and 2021 (only +1%), recording a slight decrease in 2020. The share of raw material costs on the total costs has increased in the period 2016-2018 in comparison to the overall period (form 71% in the 2013-2015 period to 73% in the 2016-2018 triennium); in the period 2019-2021 the share of raw material costs on the total costs decreased to 72%- table 3.4 (based only on DCF/EUMAP countries' data).

[4] It is worth noting that the EU totals should be carefully considered as a big number of data are missing, both at countries level and in terms of years available (for details see the coverage section).

Table 2.3 Economic performance of the EU fish processing industry sector, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ(2020-21)
Income, expenditure and investments (million €)										
Turnover	22.391,4	22.407,7	23.448,1	25.242,3	26.457,7	26.962,8	28.411,1	28.087,0	29.359,2	5%
Total Income	22.560,0	22.639,9	23.774,6	26.323,9	27.627,7	27.875,8	29.443,1	29.119,0	30.605,0	5%
Total purchase of goods and services	10.503,1	10.615,2	11.733,7	13.407,3	13.396,0	14.013,0	14.494,9	13.267,3	14.607,1	10%
of which: energy costs	*466,2*	*454,5*	*455,6*	*500,8*	*416,9*	*422,5*	*457,7*	*421,4*	*472,6*	12%
Personnel costs	2.357,6	2.401,5	2.404,5	2.597,1	2.648,5	2.208,4	3.005,3	3.054,9	3.181,1	4%
Net Investments	408,7	543,5	463,9	479,9	540,6	566,2	583,1	732,8	691,7	-6%
Economic performance (million €)										
Gross Value Added	4.188,1	4.241,0	4.004,3	3.939,0	4.842,4	4.299,8	5.283,3	6.109,7	5.720,1	-6%
Operating Cash Flow	1.882,7	1.880,5	1.653,7	1.378,4	2.234,8	2.142,4	2.319,9	3.106,7	2.678,5	-14%
Productivity and performance Indicators										
Labour productivity (thousand €)	46,9	46,5	43,8	41,2	51,9	44,8	53,1	62,5	56,1	-10%

Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS data
Notes: Energy costs and net investments for Eurostat countries 2020 - Other income excluded for Slovenia (all the years) and Germany (2021)

Table 2.4 Cost structure of the EU fish processing industry, 2013-2021

Cost items		avg 2013-2015	avg 2016-2018	avg 2019-2021
Total costs / Total income (%)		90%	91%	89%
Cost items as a share of total costs (%)	*Raw materials*	71%	73%	72%
	Personnel costs	11%	10%	11%
	Other operational costs	16%	16%	16%
	Energy costs	2%	2%	2%

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS data. *Notes: based only on DCF/EUMAP EU MSs because of lack of details on operational cost and total costs in Eurostat/SBS*

As far as energy costs, if the share on total costs appears to be stable over the period 2013-2021, The cost share of energy to total cost appears to be stable over the period 2013-2021, an increasing trend of this cost item is recorded in the last two years (+12%) and it is foreseen that the cost share will increase in the near future (for details see section 2.3).

Even though there has been an increase in the main production costs, the increase in the value of production of EU fish processing enterprises has allowed them to generate a positive Gross Value Added, equal to around EUR 5.7 billion, in 2021. This shows the importance of the EU fish processing industry in relation to the capture fisheries sector in Europe, seeing that the GVA produced by the EU fishing fleet amounted to EUR 3.2 billion, in 2021 (STECF, 2023).

The in-depth analysis of all the economic performance indicators supports an upward trend with improving economic results in the sector: indeed, the added value generated by the EU fish processing industries was high enough to counterbalance the increase in the personnel costs (+3% vs. 2019), due both to the increase of the employment level and of the average wages, as already

highlighted in the previous section. Consequently, the sector has been able to generate an Operating Cash Flow (OCF) equal to EUR 2.7 billion in 2021, increasing by +15% vs 2019.

The highest share of GVA and OCF was produced by the countries with the larger sector, e.g., Spain, Poland and France. Spain is first for both indicators, with share equal to 31% for GVA and to 38% in terms of OCF, followed by France, in terms of contribution to GVA, and by Poland, in terms of OCF– Table 3.5.

Table 2.5 Economic performance of the EU fish processing industry sector by country, 2021

Country	Gross Value Added (million €)	% of total EU	Operating Cash Flow (million €)	% of total EU
Austria	9.8	0%	2.9	0%
Belgium	157.6	3%	94.1	3%
Bulgaria	61.3	1%	49.6	2%
Croatia	61.9	1%	34.8	1%
Czechia	23.8	0%	7.7	0%
Denmark	338.7	6%	156.2	6%
Estonia	26.8	0%	5.0	0%
Finland	51.4	1%	7.3	0%
France	836.0	14%	247.5	9%
Germany	375.1	6%	162.9	6%
Greece	113.3	2%	72.6	3%
Hungary	2.0	0%	0.7	0%
Ireland	144.2	2%	49.9	2%
Italy	421.9	7%	167.4	6%
Latvia	50.6	1%	15.7	1%
Lithuania	111.6	2%	41.2	2%
Malta	6.5	0%	4.1	0%
Netherlands	187.3	3%	56.9	2%
Poland	691.5	12%	365.4	13%
Portugal	241.9	4%	97.7	4%
Romania	57.5	1%	44.9	2%
Slovakia	6.9	0%	1.7	0%
Slovenia	4.1	0%	1.1	0%
Spain	1,801.1	31%	1028.0	38%
Sweden	81.6	1%	13.2	0%
Total	5,864.3	100%	2728.4	100%

Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS.

Notes: Belgium: 2020 data for expenditure and capital costs; Other income excluded for Slovenia (all the years) and Germany (2021); Ireland: 2020

The trend towards efficiency is highlighted by almost all the productivity and profitability indicators reported in Table 3.6. For technical reasons (lack of details on capital assets and costs, on financial costs and debts in the Eurostat/SBS dataset) the table reports the performance indicators only for the MSs submitting data under the DCF/EUMAP framework (*note: Spain is excluded since capital costs are not submitted)*. It offers, nevertheless, a snapshot of the average efficiency level of the EU fish processing firms.

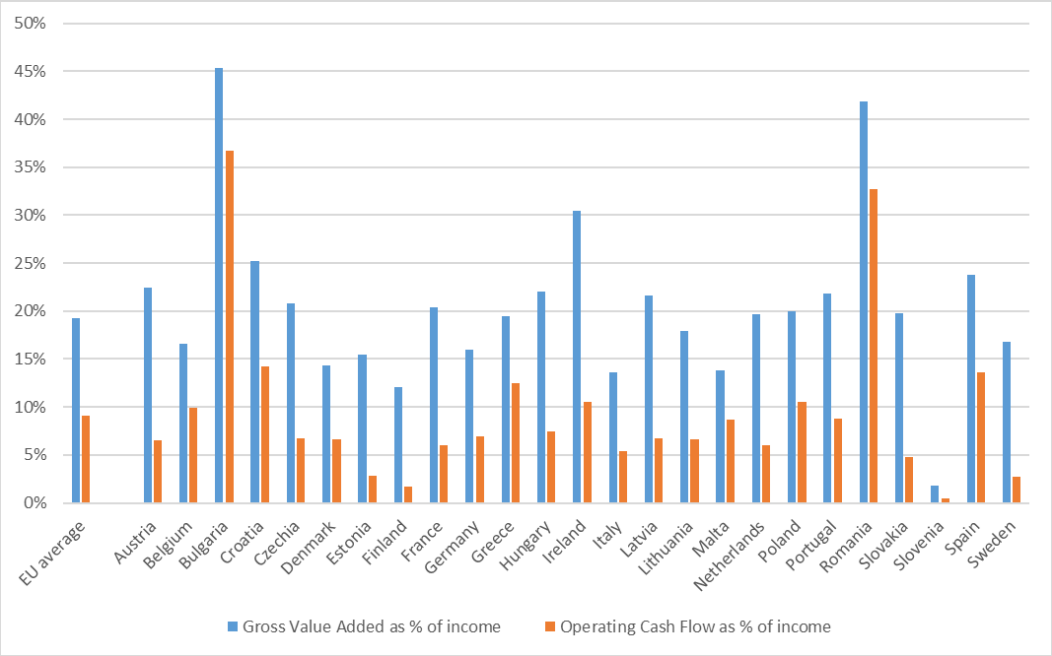
The capital productivity, highlighting the ability of the capital invested in the sector to generate value (GVA/Total value of assets) records a noticeable increase between 2019 and 2020 (percentage points) as well a slight decrease in 2021. A positive trend is detectable also for the financial position, increasing between 2017 and 2021, hence highlighting a decrease of the capital owned by third parties on the total assets invested in the sector.

Table 2.6 Main productivity and performance indicators of the EU fish processing industry sector, 2013-2021 (only for DCF MSs)

Productivity and performance Indicators	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capital productivity (%)	23%	26%	28%	23%	30%	29%	28%	34%	29%
GVA margin (%)	19%	19%	17%	14%	18%	19%	18%	22%	20%
EBIT margin (%)	6%	6%	7%	3%	9%	8%	7%	11%	12%
Net profit margin (%)	3%	3%	5%	3%	6%	5%	4%	7%	7%
Return on Investment (%)	8%	10%	12%	6%	15%	13%	12%	17%	18%
Financial position (%)	3%	3%	6%	7%	16%	15%	16%	16%	16%

Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS data. *Notes: based only on DCF/EUMAP EU MSs because of lack of details on capital assets and costs, on financial costs and debts in Eurostat/SBS. Spain not included in all the indicators (with the exception of GVA margin) as all capital costs are missed.*

Figure 2.7 Economic performance of the EU fish processing industry sector by country (indicators in relation to income), 2021



Source: elaboration by the EWG on MS data submissions under the 2023 Fish processing data call and on Eurostat/SBS.
Note: Ireland 2020

An increase is evident between 2020 and 2021 for the profit margin indicators (EBIT and Net profit on total income) compared to previous years (2013-2019) – Table 3.6.

The almost doubled values of the profit margins (EBIT and net profit) and of ROI, the ability of firms to produce profits from investments, over the period 2013-2021 (Table 3.6), together with the increase of the number of the biggest enterprises (Table 3.1; Figure 3.3) testifies a general process of concentration toward a more industrialised sector, where bigger enterprise, more capitalised, which are better and more able to overcome period of crisis.

Large differences emerge among EU countries in terms of ability to produce value added and earnings from the production. The EU GVA as percentage of total income was around 20%, with

large differences across MSs: highest GVA margin for Bulgaria and Romania, 45% and 42%, respectively, and lowest for Finland and Denmark, respectively 12% and 14%.

2.3 Trends, drivers and outlook

The present paragraph is aimed to provide some qualitative and quantitative considerations on the main drivers of changes that directly or indirectly affected the EU fish processing sector until 2021 (the last year of data collected), to provide justification to trend detected in the data series, and between 2021 and the time of writing (November 2023), trying also to infer potential future trends.

2.3.1 Covid-19 impact

An anticipation of the impact of COVID-19 pandemic on the economic results of the EU fish processing sector was already provided in the 2021 report.

Generally speaking, the main effect of COVID-19 pandemic was the disruption of the international logistics and seafood supply chains. The pandemic emphasized the importance of logistics and transports within global supply chains.

The impact of the pandemic on the sector and in the short term was not as great as initially expected. As already foreseen on the 2021 report, overall, the EU fish processing industry has been able to manage the impacts of the pandemic disruptions quite well. Although at individual level multiple fish processors have negatively been affected in economic terms, in particular those fish processors that were supplying the food service. Due to COVID-19 restrictions (such as lock-downs) there was a decisive demand drop by temporarily closed HoReCa. The reduction of activity in the HoReCa channel had as a counterpart an increase in domestic consumption. Many fish processors found opportunities and new distribution channels for their products.

Published evidence on both the aquaculture sector (Nielsen et al., 2023), the fishing sector (Asche et al., 2022) and fish value chains (Anderson et al., 2022) show that the effect of the Covid-19 pandemic in most cases seems to be a short-term effect, where there were losers due to the initial shock, but also industries discovering new possibilities.

As anticipated in the 2021 report, the difficulties for putting in practice social distance in the workplace favored infections in the working crews, increasing absenteeism and the shutdown of many operations. Productivity has been seriously affected by the spread of infection in the processing plants (Pititto et al., 2021). Attempts to prevent infection of Covid-19, whether mandatory or voluntary, have resulted in a decrease of the working hours and absenteeism, as testified by the almost stable number of total persons employed against the decrease in the FTE units (indicator based on the number of hours worked per year). Countermeasures were implemented for reducing the incidence of these issues, increasing labor costs (+2% 2020 vs. 2021), as already anticipated in the 2021 report.

The initial shocks on labor productivity and the supply chains started mitigating by the end of 2020, heading for recovery in the levels of activity and economic performance in 2021.

Indeed, data collected during the 2023 data call (complemented by Estat/SBS data) confirm what was already anticipated in the 2021 report. The turnover of the overall EU fish processing industry slightly decreased (-1%) in 2020; at the same time, the more consistent decrease of the main cost items (e.g. raw material) by 8%, resulting in an increase of the GVA (+16%) and of the operating cash flow (+34%).

2.3.2 Consumption, prices and imports[5]

Of all goods and services purchased by EU households, fishery and aquaculture products account for less than 1%, which is much lower than meat (3.9%). Processed products (frozen, dried, smoked or salted and other preserved or processed products and preparations) account for more

[5] Most of the information reported in this section are based on Eumofa 2022.

than half of the total. From 2019 to 2020, the share of EU consumers' spending on fishery and aquaculture products in total goods and services did not change, while the share of spending on meat increased, contributing to the increase in the share of spending on food products in general.

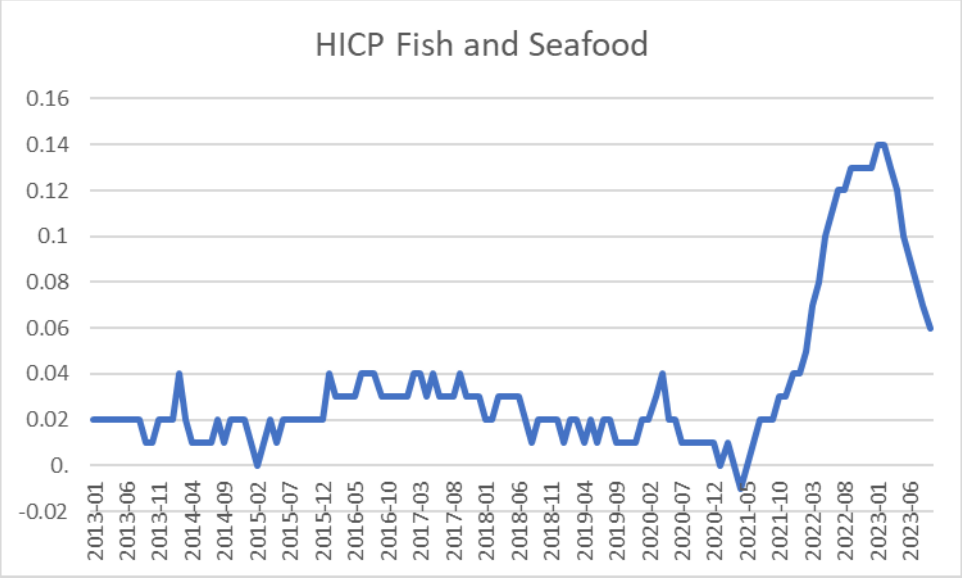
During the pandemic, at-home consumption of fish and seafood products increased, despite a decrease in the out-of-home consumption, because of the lock-down effect. In particular, as far as processed products are concerned, at EU level, sales through food services have fallen drastically from 2019 to 2020, with a drop of 35%. The decline was most significant in larger countries, where restaurants closed for longer periods.

From 2020 to 2021, the share of EU consumers' spending on fishery and aquaculture products in total goods and services has increased by 10% (the same growth rate detected for meat consumption). It is interesting to note that, from 2020 to 2021, households spending on seafood products grew significantly (+7%) and to a greater extent than the inflation reported by the prices of these products over the same period, likely due to the post-Covid-19 recovery (coming back to previous consumption habits) and more awareness among households in general for healthy diets and lifestyles.

In 2021 also sales of processed products in the HoReCa sector recovered, increasing by 15%. Euromonitor estimates that there will be further increases for processed products, whose sales will then stabilize in the period 2024-2026.

Average fish prices have started to rise significantly during 2021 (Figure 3.9), in line with the increase in import prices, as the EU's demand for seafood is mainly met through imports (see next section). According to more recent data, this increase continued during 2022, reaching a peak in the first months of 2023, a phenomenon to be linked to the general inflation and to the sharp rise in energy prices and costs in general that affected most operators in these and all the production sectors.

Figure 2.8 Harmonised Index of Consumer Prices (HICP) for fish and Seafood, 2013-2023



Source: Eurostat

The price increase has already impacted the power spending of households around EU, reducing the volume of fish product purchased in 2022 and in 2023 (for details see national chapters for Spain and Italy) while producing an increase in the value of spending that will have, for sure, an impact on the turnover of the sector. This recalls that inflation can in the short-term help increase income despite falling consumption. But in the medium-long term, it is hitting the households' purchasing power and consumers can modify habits and substitute seafood by other proteins. Inflation and its evolution is a source of uncertainty.

2.3.3 Raw material, imports and energy costs in relation to the current factor of crisis

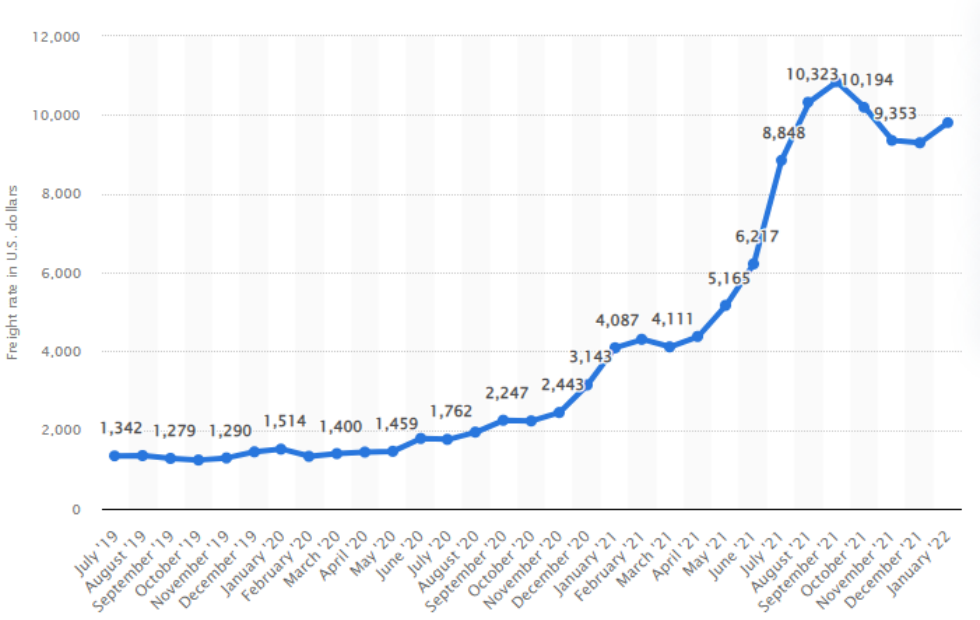
With the increase in the fish consumption, shortages of raw materials are the main challenge for the EU fish processing industry. Since the demand for seafood products is larger than the supply by landings and aquaculture, the industry is a net importer, progressively becoming more and more dependent on imports with the increasing restrictions on the fishing opportunities and the lack of growth in EU aquaculture.

It should be noted that in 2021, in line with the fully recovering from the pandemic, the volume of imports from third countries reached one of the highest levels of the last decade analysed.

During the two-year period 2020-2021, the value of imports increased more than volume, due to an increase in the prices of imported products. This is largely due to the depreciation of the Euro against the Norwegian krone in 2021, making imports from Norway more expensive than in 2020 and, as a large part of EU imports come from Norway (26% of the total), and this contributed significantly to the increase in the overall value of EU imports.

As already highlighted in the 2021 Report, among the impact of costs' increase in 2020 and 2021, the shipping transport costs deserve special attention because of the generalised impact on the whole supply chain. As the COVID-19 pandemic disrupted international logistics and supply chains after March 2020 there were several barriers that hit the seafood trade. Multiple events caused a strongly increased container shipping market price. The market prices for the rent of shipping containers increased by a factor of more than nine. In 2019, the average container freight rate index was between $US 1 200 and $US 1 300. In September and October 2021 this index was more than $US 10 100 (Figure 3.10).

Figure 2.9 Container freight rate index worldwide 2019-2022 (in U.S. dollars)



Source: https://www.statista.com/statistics/1250636/global-container-freight-index/[6]

Since 2022, the war in Ukraine has resulted in an increase in global energy prices, which have affected all enterprises and private consumers. Overall, it is not expected that the fish processing industry is hit harder than other food producing industries. There is an increased cost for processing freezing, drying and transporting the products, but that is also the case for all other industries. Furthermore, energy is a relatively small part of total production cost (2% in 2021) and has as such only a minor effect even if energy prices rise again (for details on the impact of the energy crisis see the next section).

[6] https://www.statista.com/statistics/1250636/global-container-freight-index/

One of the hypotheses of the 2021 report was that the Ukraine-Russia war started in 2022 did not only result into higher energy costs but also in a decrease of EU imports of whitefish from Russia. Russian seafood imports by the EU are significant. According to Eumofa (2021), in 2020 Russia was ranked as the 11th non-EU supplier of seafood to the EU market by value. A large proportion of these imports are whitefish, such as cod, haddock and pollock, which enter the EU single market every week, either directly or through non-EU countries where they are processed, with destination markets in Portugal, Spain, and Germany[7]. Contrary to expectations, according to Eumofa (2022), from 2020 to 2021, EU imports of Alaskan pollock from Russia increased, by 29% in volume terms and 31% in value terms, and in the first half of 2022, despite Russia's war on Ukraine, they reached historic highs.

Indeed, due to the high demand of whitefish products and the reliance on Russian imported seafood by supermarkets and fast-food outlets, in September 2022, the European Union only banned imports of Russian caviar and its substitutes and some shellfish.

2.3.4 Brexit

At the supply side Brexit can limit the availability of raw materials especially for those countries earlier fishing in UK waters and being depending on UK supply or imports, e.g. Ireland, Denmark and Netherlands.

The EU/UK Trade & Cooperation Agreement (TCA) agreed between the UK and the European Union, came into effect on the 1st of January 2021. Under this agreement there was a transfer of quota from EU member states to the UK.

As detailed in the Ireland national chapter, under the terms of the trade agreement, Ireland faced a 15% reduction in overall value of quota as compared to 2020. The processing sector is largely impacted as quota transfer causes structural imbalances between fleet capacity and resource availability, impacting logistics and route to market options for processors and the availability of raw material inputs. Indeed, imports from the UK represented a key input into Irish retailers and the processing supply chain. As competition in sourcing raw materials increases, input costs may also rise for enterprises. The Brexit Processing Capital Support Scheme, facilitated through Brexit Adjustment Reserve funding, aims to develop the efficiency of supply chain processes of the Irish seafood processing sector, and support the transition to processes producing higher value chain products. The scheme supports processors seeking to diversify their product offering, innovate supply chain processes and invest in new technologies to extract more value from available raw material and also increase greener practises in business. However, Brexit continues to remain a large threat to industry as quota reductions will continue yearly until 2026.

The Brexit has represented and continues to represent also a major concern for the Danish fisheries and fish processing enterprises. It is not only a matter of the lost fishing opportunities in British waters it also affects the negotiation between Norway and EU, which is also an important fishing ground for Danish fishers. The vessels affected by Brexit are primarily targeting pelagic species for reduction, herring and mackerel. However, there are also demersal trawlers that have been affected.

As highlighted in the Dutch chapter, 30% of the landing value by Dutch demersal fisheries comes from British waters. For the Dutch pelagic fisheries, this is even 60%. There is a Brexit deal until 2026. However, from 2026 annually negotiations will be needed to maintain access by EU fisheries to British waters.

[7] https://our.fish/publications/letter-to-european-commissioner-including-russian-seafood-and-fishing-vessels-in-upcoming-eu-sanctions/

3 IMPACTS OF THE ENERGY CRISIS ON INDUSTRIAL COSTS

Energy is a critical resource for any productive activity and any change in its cost will have an impact on the profitability of the business. The performance of an industry is affected by the evolution of the energy costs in several ways with different intensity of the impacts depending on the structure of the industry and other factors. Thus, the energy costs crisis is not affecting the EU fish processing industry in a homogeneous way but important differences across segments and countries. The shocks of the energy prices must be more impacting on capital intensive industries rather than on those labour intensive. The more technified fish processing companies should suffer higher impacts on their operational costs than the artisanal producers. Further, the increase in the costs of energy differs across Member States depending on their dependency on Russian supplies. Peripheral countries such as Portugal, Spain or Ireland have experienced lower increases in the prices of energy supplies than other with higher dependency on gas imports from Russia.

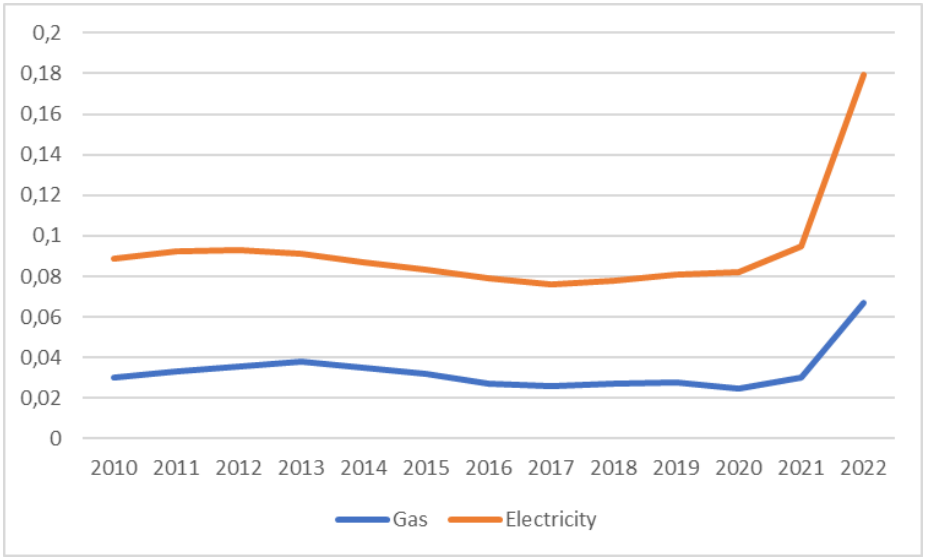
The rise of the energy costs must have had direct impacts on the companies' performance in the form of increased prices of electricity and other energy sources consumed in the production process. Further, besides the direct impact of the increase of energy prices on the production costs, the shocks of the energy prices may have also affected the costs of other critical inputs in fish processing such as raw materials or logistics.

Considering the limitations in the availability of data, this section is attempting to provide some insight of the potential impacts of the current energy crisis, exacerbated after the illegal aggression of Ukraine by Russia, on the production costs of EU fish processing sector. To do so, the evolution of the energy prices is discussed in first term. Direct impacts on the cost structure are derived from the increase of the energy bill. Further, and subjected to the availability of data, some indirect impacts can be assessed.

3.1 Energy prices

According to the last Eurostat data, the price of electricity for non-household consumers raised dramatically in 2022, with an increase of 89.9% regarding the previous year. So far, the evolution of the price of electricity remained relatively stable with an increase of 6.5% along the past decade. The price of electricity strongly depends on the price of gas, which followed a similar trend with a dramatic increase of 122.4% between 2021 and 2022 (Figure 4.1). Gas has been a critical element in the EU energy production and supply. Using the Eurostat data, the results of a linear regression model indicates that the changes in the price of gas explains 97.3% of the changes in the price of electricity.

Figure 3.1 Evolution of energy prices 2010-22. Log scale



Source: Eurostat.

3.2 Direct impacts on energy costs (and potential increase of prices)

To estimate the impact of the energy crisis on the fish processing industry in 2022 and the first half of 2023, it is necessary to start from a hypothetical situation, due to a lack of data, which assumes that activity levels have been maintained during the period under study. That is, assuming that operating costs will remain constant, with the exception of energy costs, which will be increased accordingly. The estimate will be carried out in Spain, Italy, Germany, and Poland, which are the countries with the highest production for which data are available.

The price of electricity for non-household consumers increased in **Spain** 87.3% in 2022 but decreased 43.4% in the first semester of 2023 as a result of the special conditions of the country regarding the supply of energy sources (Table 4.1).

Table 3.1 Variations in the price of electricity for non-household consumers in Spain

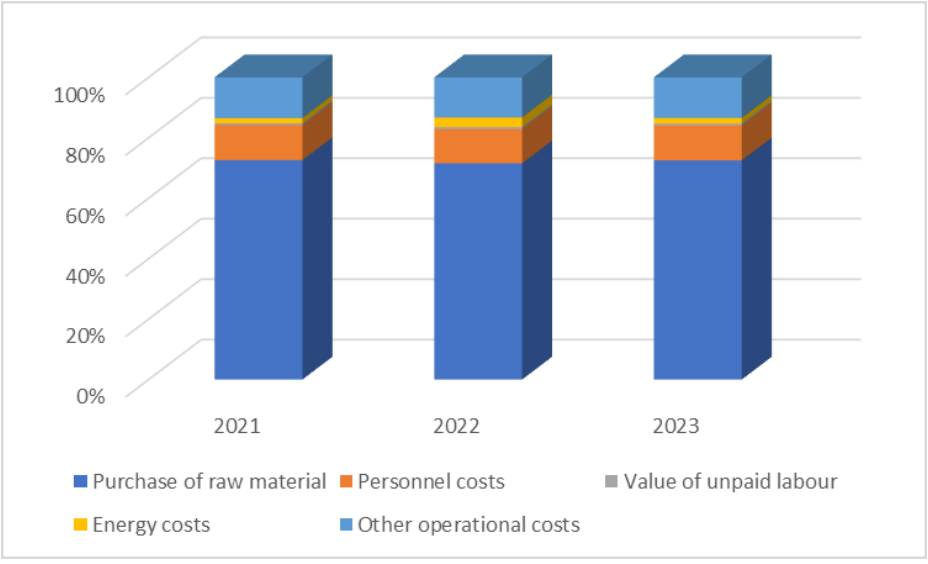
Electricity price 2021	0.1023
Electricity price 2022	0.19165
Increase 21-22	87.3%
Electricity price 2023	0.1085
Increase 22-23	-43.4%

The result on the fish processing industry seems not have been so relevant compared to other cost items, even it raised one perceptual point, up to 3.2% of the total costs, in 2022. However, the situation reverts in 2023, almost returning to the figures of 2021 (Table 4.2; Figure 4.2).

Table 3.2 Variations in the cost structures of the fish processing industry in Spain

	2021	2022	2023
Purchase of raw material for production	72.6%	71.5%	72.5%
Personnel costs	11.5%	11.4%	11.5%
Value of unpaid labour	0.6%	0.6%	0.6%
Energy costs	1.7%	3.2%	1.8%
Other operational costs	13.5%	13.3%	13.5%

Figure 3.2 Variations in the cost structures of the fish processing industry in Spain



The price of electricity in Italy shows a similar trend as in Spain, but the increase in 2022 was 139.6%, significantly higher, and the decrease in 2023, 27.6% was smaller (Table 4.3).

Table 3.3 Variations in the price of electricity for non-household consumers in Italy

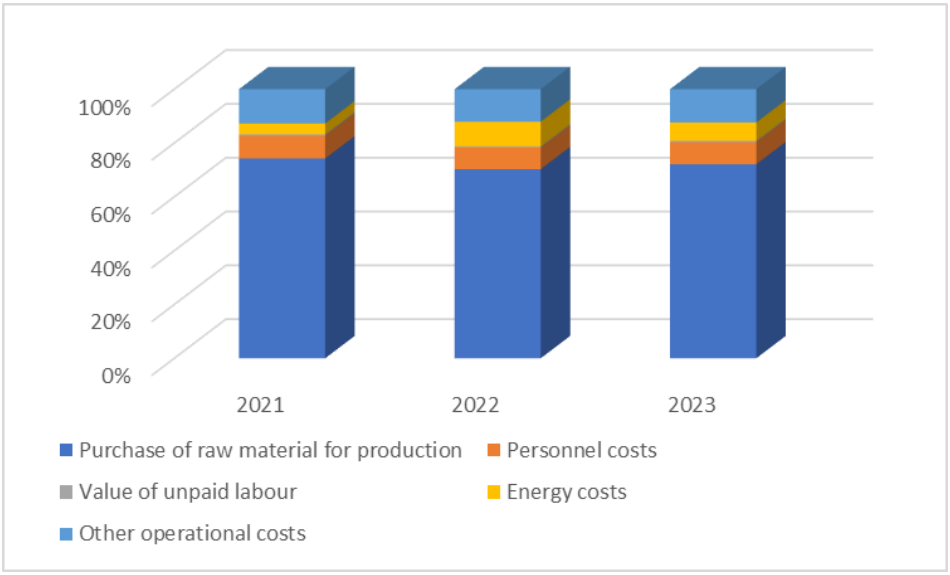
Electricity price 2021	0.1171
Electricity price 2022	0.28055
Increase 21-22	139.6%
Electricity price 2023	0.2031
Increase 22-23	-27.6%

Energy costs are more relevant in Italy than in any other of the four countries studied. The weight of energy raised to 9.2% in 2022 and, even it decreased in 2023, they still represent almost 7% of the total operational costs, still a larger percentage than in 2021 (Table 4.4, Figure 4.3).

Table 3.4 Variations in the cost structures of the fish processing industry in Italy.

	2021	2022	2023
Purchase of raw material for production	74.3%	70.3%	72.1%
Personnel costs	8.5%	8.0%	8.3%
Value of unpaid labour	0.4%	0.4%	0.4%
Energy costs	4.1%	9.2%	6.8%
Other operational costs	12.7%	12.1%	12.4%

Figure 3.3 Variations in the cost structures of the fish processing industry in Italy



Electricity prices for industrial use in **Germany** grew steadily in 2022 and 2023. However, the rate of growth moderated in 2023, from 75.7% to 15.6%.

Table 3.5 Variations in the price of electricity for non-household consumers in Germany

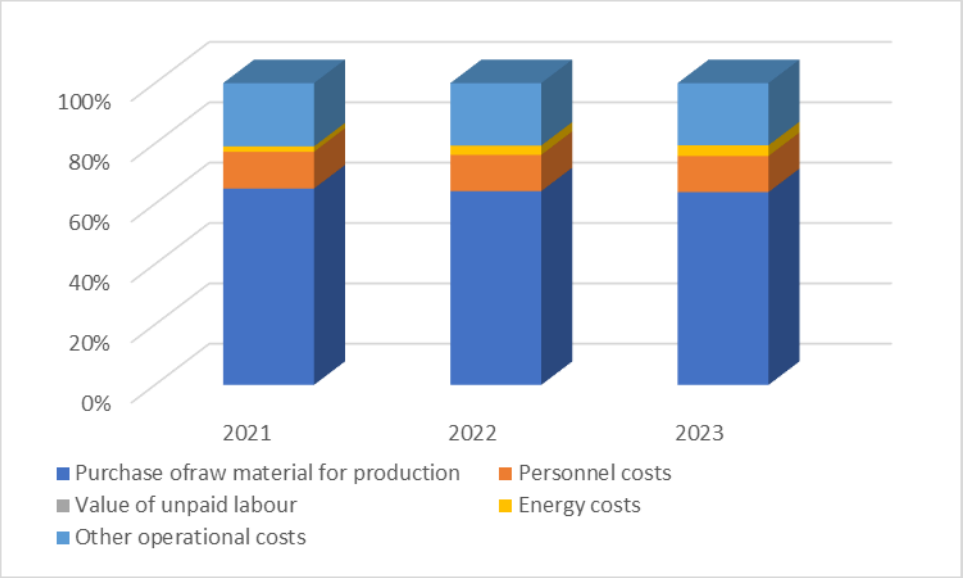
Electricity price 2021	0.09375
Electricity price 2022	0.1647
Increase 21-22	75.7%
Electricity price 2023	0.1904
Increase 22-23	15.6%

The consequence on the cost structure is a sustained increase in the share of energy in the total operating costs from 1.8% in 2020 to 3.5% in the first semester of 2023 (Table 4.6, Figure 4.4).

Table 3.6 Variations in the cost structures of the fish processing industry in Germany.

	2021	2022	2023
Purchase ofraw material for production	65.1%	64.2%	63.9%
Personnel costs	12.2%	12.0%	12.0%
Value of unpaid labour	0.0%	0.0%	0.0%
Energy costs	1.8%	3.1%	3.5%
Other operational costs	21.0%	20.7%	20.6%

Figure 3.4 Variations in the cost structures of the fish processing industry in Germany



Poland illustrates another example of continued increases in the price of electricity. Although the cost of electricity decreased in 2023 with regard 2022, it kept increased at a not too smaller rate than it did in 2022 (Table 4.7).

Table 3.7 Variations in the price of electricity for non-household consumers in Poland.

Electricity price 2021	0.0708
Electricity price 2022	0.10515
Increase 21-22	48.5%
Electricity price 2023	0.1405
Increase 22-23	33.6%

Consequently, the weight of energy into the operating costs of the Polish fish processing industry increased from 1.2% to 2.3% in the observed period (Table 4.8, Figure 4.5).

Table 3.8 Variations in the cost structures of the fish processing industry in Poland.

	2021	2022	2023
Purchase of raw material for production	76.2%	70.3%	72.1%
Personnel costs	11.3%	8.0%	8.3%
Value of unpaid labour	0.0%	0.4%	0.4%
Energy costs	1.2%	1.6%	2.3%
Other operational costs	17.1%	12.1%	12.4%

Figure 3.5 Variations in the cost structures of the fish processing industry in Poland.

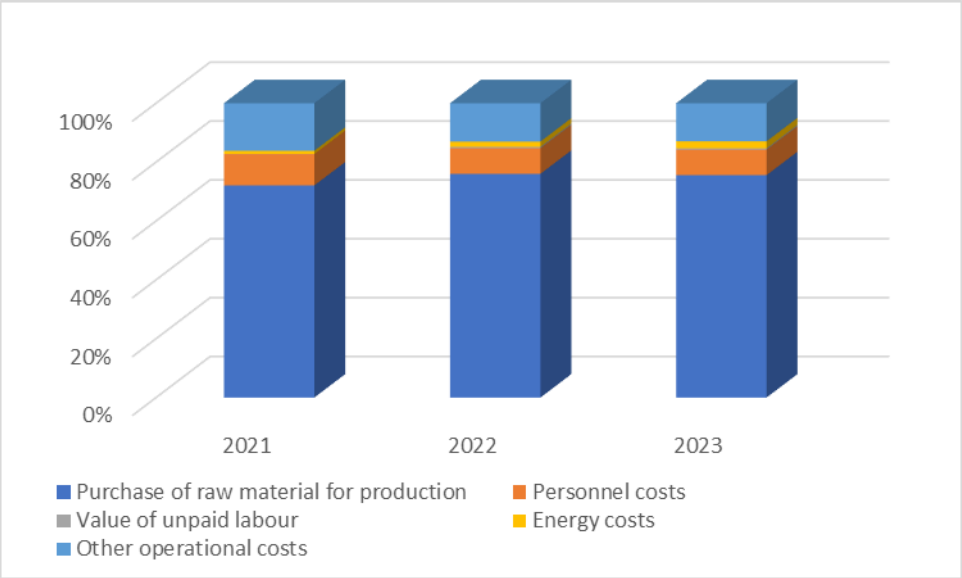
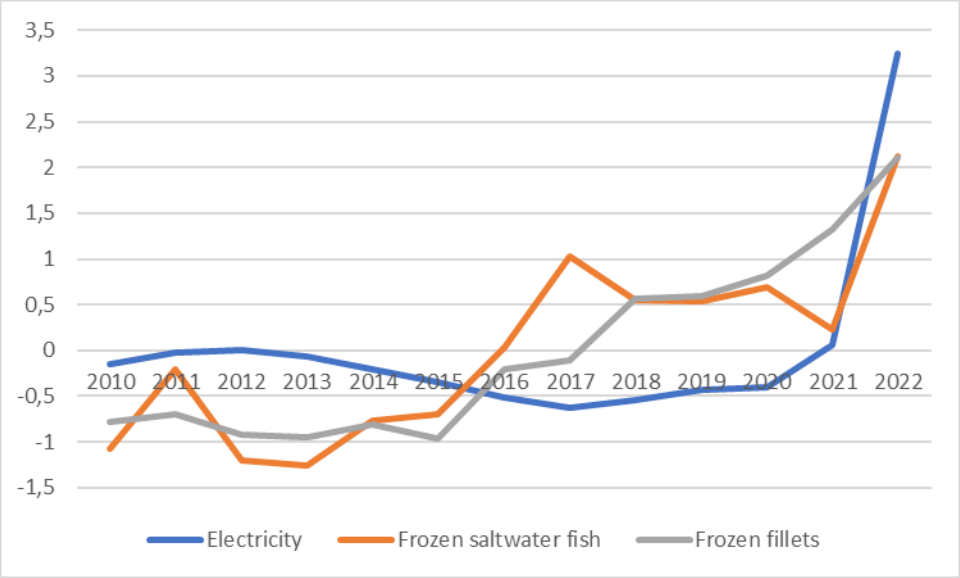


Figure 3.6 EU Prices of electricity and frozen fish commodities. Source: Eurostat & ProdCom.



Besides these general trends in the industries of each country, the impacts of the energy crisis may substantially differ across segments within the same country. The increase in the prices of some major fish commodities produced in the EU, recorded at ProdCom, was correlated with the evolution of the electricity prices rising different results across countries. Frozen whole saltwater fish and fish fillets were found to significantly correlate with the evolution of the prices of electricity (Figure 4.6).

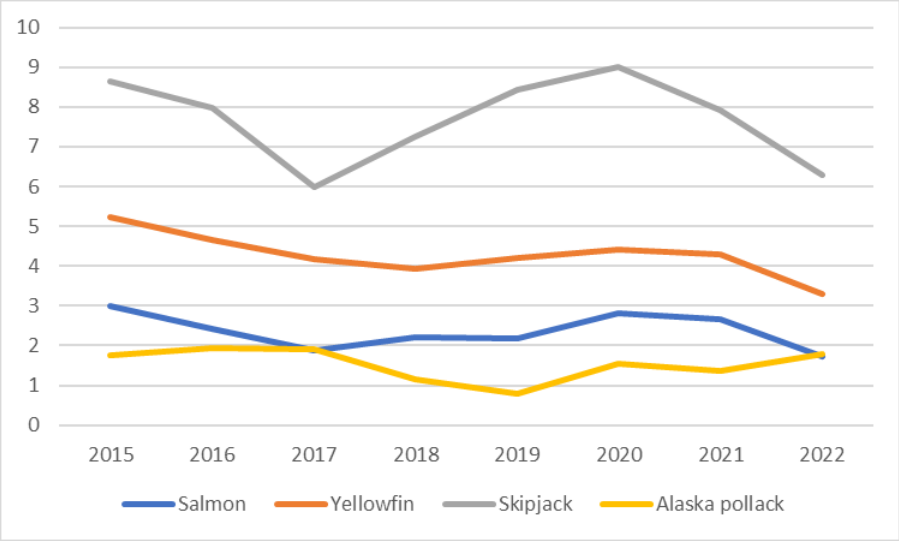
The changes of the price of electricity explain 63% of the changes on whole frozen fish prices and 88% of those in the prices of frozen fish fillets. Association with the price of fish processed products and electricity was instead rejected in the cases of canned skipjack tuna and smoked salmon.

3.3 Indirect impacts: impacts on raw materials

In addition to the impact of rising energy prices on the operating costs of fish processing companies, the energy crisis is expected to have affected the prices of many of their inputs. The potential impacts on the prices of raw materials were intended to be tested with some of the main commodities imported from outside the EU to supply the European processing industries. Raw materials in fish processing gathers a wide range of species and levels of preparation targeted by different industrial segments under varied market conditions, resulting in a heterogenous market behavior. Thus, the impacts, if any, may differ across commodities and industrial segments.

According to the data recorded in the EU external trade database, the prices of frozen whole salmon, yellowfin, and skipjack imported from outside the EU decreased since 2015, while the prices of Alaska Pollack remained somehow stable (Figure 4.7). The decreasing trend of tuna raw materials has nothing to do with the current energy crisis, since it seems to be a long-term trend.

Figure 3.7 Evolution of the prices of whole frozen fish imported from outside the EU.



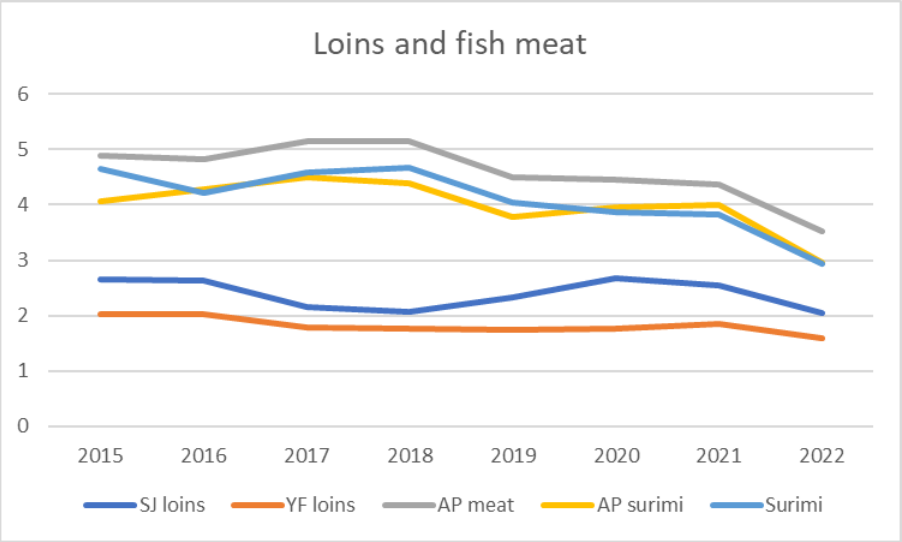
Source: Comext.

Other processed frozen fish products used in the fish processing industry, such as tuna loins, minced whitefish meat and surimi, also decreased their prices since 2010 (Figure 4.8).

Other more specific commodities like salmon in pieces or smoked, and frozen and prepared mussels have seen their prices increased in the last decade, but this increase in uncorrelated with the shocks of the prices of electricity.

Overall, the prices of raw materials imported from outside the EU do not seem to have been affected by the ups and downs of the energy market. Some of the countries of origin do not have their energy supplies subject to the restrictions that have occurred in Europe and the trends in prices in the medium and long term have continued. However, the prices of raw materials caught within the EU have had to be affected by rising energy prices, as have many other products produced in the Member States of the Union. Unfortunately, there are no separate data sets for these commodities that would allow a detailed analysis to be carried out that could be extrapolated to the situation in the Union as a whole.

Figure 3.8 Evolution of the prices of frozen fish commodities imported from outside the EU



Source: Comext.

3.4 Summary and conclusions

Despite the lack of sufficient specific data on the prices of some critical inputs for many fish processing activities, some impacts of the increases in the costs of energy can be approached. The direct impacts depend on the structure of the industry in the countries and the different sources of energy available in each case. Italy showed the higher impacts in their cost structures, but the cost of energy significantly decreased in 2023. Spain is the country which appears to better have managed the volatility of energy prices, and the share of energy in the total operating costs should almost returned to the levels of 2021 in the first half of 2023. The costs of energy kept increasing in Germany and Poland in a continuous since 2021, although moderating the increases in 2023.

The above estimates should differ across industrial segments. Although the prices of imported raw materials appear not have being affected by the shocks in the energy market, the prices of processed fish products have increased in the European markets. The increase in the prices of frozen fish products, whole or filleted, have been found to be correlated with the evolution of electricity prices with significant levels, while canned tuna and smoked salmon appear to be independent of the shocks of energy costs. Indeed, the frozen fish industry is more intensive in electricity than other fish processing activities, and thus, their costs and prices more sensitive to changes in the price of electricity.

Unfortunately, the current structure of the data does not allow an analysis at the segment level, which would provide much more accurate information about the real consequences of the energy crisis on the different EU fish processing activities.

4 FISH USED AS RAW MATERIAL: DATA COLLECTION STATUS AND POTENTIAL USE FOR MANAGEMENT PURPOSES

Information about species used as raw materials is of paramount importance to understand the dependency of the fish processing sector on specific species of line of business (imports, local fisheries, aquaculture etc.). The availability of information about the raw material, although critical and important, is very limited. Nine (9) out of the twenty 26 (26) MS participating in the Fisheries Data Reporting scheme provided data about raw materials used in 2020 and 2021. Based on volumes of processed fisheries products, for 2021 Member States can be aggregated into three different groups. The MS with more than 200 thousand tonnes produced, MS producing between 90 thousand tonnes and 200 thousand tonnes and the rest of the MS producing less than 90 thousand tonnes in 2021. Another possible grouping is based on the variety of produce. The type of products offered, and the related type of processing is heavily depended to the market that the products are addressed to. The first group consisted of MS with demand driven by local consumption and tourism such as ESP, FRA, ITA, GRC and PRT. A second group of MS consisting of CZE, DNK, FIN, IRL and NLD produces a small variety of products with limited processing such as fresh and/or frozen fillets. In the contrary MS such as POL, LTU, ITA, FRA and ESP offer to the market a wide range of processed fisheries products (fresh, frozen, smoked, preserved, canned, buttered, etc.).

There was an increase by 11.8% of raw materials' quantities used between 2020 and 2021 (Table 1). Given the low level of information about raw materials used it is not possible to make reasonable comments about the type and impact of raw materials used by MS on the products offered to the market. It is possible to make specific comments about the sourcing of raw materials and products offered to the market only for DEU, POL, ITA (2020), GRC, HRV, FIN (2021), ROU and BGR.

Table 4.1 Raw material used by country (in kg)

Row Labels	2020	2021	2021 vs 2020
BGR- Bulgaria	28,736,021	27,882,476	-3.0%
DEU- Germany	796,150,724	889,924,252	11.8%
GRC- Greece	54,052,398	65,627,762	21.4%
HRV- Croatia	41,950,007	42,322,973	0.9%
POL- Poland	699,843,601	786,250,066	12.3%
ROU- Romania	24,020,110	27,457,169	14.3%
SVN- Slovenia	2,464,257	2,572,010	4.4%
Total	**1,647,217,118**	**1,842,036,708**	**11.8%**
FIN- Finland	0	49,452,000	
ITA- Italy	666,903,914	0	
Grand Total	**2,314,121,032**	**1,891,488,708**	

The experts produced an overview of the data available for the EWG, in addition to the missing data for more than half of the MS, the level of information varies a lot among the countries and creates discrepancies for any comparative analysis.

The differences in the information level provided is presented in the Table 5.2.

Table 4.2 Details of data on raw material provided by MSs under 2023 and previous data calls

	RAW data	Species Coding	Production Environment	Origin	Country
AUT	No				
BEL	No				
BGR	Yes	3 alpha code	No	Mix of production environment and country	Country or FAO area
CYP	No				
CZE	No				
DEU	Yes	Mix comon names and generic categories	Aquaculture / Fisheries / unspecified	No	Domestic, EU, non-EU
DNK	No				
ESP	No				
EST	No				
FIN	Yes for 2021	3 alpha code	No	No	Domestic, foreign
FRA	No				
GBR	No				
GRC	Yes	3 alpha code, groups of alpha codes	Aquaculture / Fisheries / Fisheries-aquaculture	No	Domestic, EU, non-EU, other- EU + mix categories
HRV	Yes	all mixed	Aquaculture / Fisheries / Fisheries-aquaculture	No	Import / Domestic
HUN	Yes	Mix comon names and generic categories	No	Countries	No
IRL	No				
ITA	Yes for 2020	3 alpha code	No	No	No
LTU	No				
LVA	No				
MLT	No				
NLD	No				
POL	Yes	3 alpha code	No	Import / Domestic	Import / Domestic
PRT	No				
ROU	Yes	Mix latin and comon names	No	Import/Indigenous	Import / Domestic
SVK	Yes	2 genreric categories : Sea or Fresh water fish	No	Own production, Purchase in SR, Admission from EU countries, Import from non-EU countries	No
SVN	Yes	3 alpha code	Fisheries/ aquacultture	Fisheries/ aquaculttur	Partly
SWE	No				

The first thing emerging from the table is that the provision of data referring to the various variables are not consistent between member states. These differences can be explained by the changes in the raw data templates provided to MS within the time period. Although this information is not mandatory anymore under DCF, it is detrimental for a comparative analysis.

The EWG recalls that some recommendations are available in the Guidance document for the fish processing (Ares (2016)2440332), regularly updated by PGECON. It gives a description of the raw material variables.

Furthermore, in the context of Farm to Fork Strategy and the preparation of Fish Product marketing standards, some sustainability criterions and indicators have been identified and evaluated to cope with product common market organization (CMO) requirements (STECF EWG 20-05, STECF EWG 22-12). The proposed criteria as fishing pressure indicator relies on the information available for the stock status. A range of thresholds have been discussed using different variables in a decision tree from F/Fmy SSB/MSY Btriger, UICN criteria, or sensitivity index allowing to allocate a score from A to E to each fishery product. However, this request to have the information on the product at the species level and the origin of the product at the geographical level. In a general manner, the more accurate information gives a better scoring; so that in case of missing data the product may get a less incentive mark for the customers. Therefore, it is crucial that detailed and homogenized information is provided in a near future especially for import products and raw material that are processed in the MS as highlighted in the Ad-hoc 21-85 report.

This will correspond to the following criteria:

- Species: 3 alpha code
- Production environment: Fishery /aquaculture
- Origin: country (Domestic/other EU/ non-EU) or if possible, more detail on the fishing area
- Type of processed material / fresh/frozen/semi-processed material)

The most important species used as raw materials in European fish processing industry for 2021, based on data provided by 8 MS are presented in Table 2. Salmon, pollock and herrings represent 15.8%, 14.6% and 7.3% of total raw materials used. Tuna is also an important species for fish processing industry as in 2020 represented 5.8% of total materials used. The main tuna quantities declared by Italy in this group. So far Italian data for 2021 are not available. Other important species are shrimps (3.4%), trouts (3.1%) Sprat (3%) and Cod (2.9%).

So far the data for raw materials provided by limited number of MS and for this reason is not possible to have accurate generic conclusions. During report drafting period, major processing MS such as Spain, France, Italy, and Denmark do not provide data about commodities used, their origin or their production method. For this reason, the EWG suggests for a deep diving in selected MS with specific market characteristics (big processor, strong local consumption, strong touristic sector etc.).

Table 4.3 Raw materials used in fish processing industry (in kg)

Species uses as raw materials [1]	2020	%	2021	%
Salmon	379,737	16.4%	443,980	23.2%
Pollock	347,272	15.0%	409,953	21.4%
Herrings	202,551	8.8%	206,367	10.8%
Tuna [1]	181,657	7.8%	2,712	0.1%
Shrimps	86,501	3.7%	96,592	5.0%
Trouts	74,300	3.2%	88,083	4.6%
Sprat	87,612	3.8%	84,472	4.4%
Cod	79,493	3.4%	81,971	4.3%
Anchovies [1]	56,713	2.5%	3,144	0.2%
Mackerel	52,930	2.3%	64,484	3.4%
Hake	29,820	1.3%	32,711	1.7%
Saithe	27,226	1.2%	26,423	1.4%
Mollusks	36,206	1.6%	22,339	1.2%
Flatfish	19,223	0.8%	15,080	0.8%
Sea bream	6,920	0.3%	8,864	0.5%
Veined rapa whelk	6,647	0.3%	4,503	0.2%
Perch	3,355	0.1%	4,452	0.2%
Squids	6,207	0.3%	4,013	0.2%
Argentines	0	0.0%	2,036	0.1%
Cuttlefish	1,265	0.1%	3,594	0.2%
	2,314,121		**1,913,285**	

Note: The comparison of 2020 vs 2021 is not recommended as Italy provided data only for 2020

In case of Italy, a big market for seafood products with strong local consumption and an important touristic destination, there are data available for raw material only for 2020. The total quantities of raw materials used in 2020 were 666.9 thousand tonnes of seafood products. The biggest raw materials category were finfish (57.4%) followed by tuna (26.9%), anchovies (8%), mollusks (2.2%), sardines (0.6%) and salmonids (0.4%). Unfortunately, data for 2021 are not available in the period of report drafting and this affects specific categories of commodities reporting for 2021 such as tuna, anchovies and salmonids.

Germany is a big market for processed seafood products. Total quantities of raw materials used in 2021 were 889.9 thousand tonnes of seafood products. Fisheries is the most important supplier as offered 610.9 thousand tonnes (68.6%) of seafood and raw materials from aquaculture were 114.1 thousand tonnes (17.3%). The most important species used were finfish (18%) such as cod, mackerel, saith, herring, whiting, followed by salmon (11%) sourced mainly from aquaculture, and shrimps (10%).

The case of Greece is a small producer of processed seafood products with low local consumption and demand for seafood driven mainly by tourism. The total quantities of raw materials used in 2021 were 65 628 thousand tonnes of seafood products. The biggest raw materials category was a bundle of products declared as fish fillets and crustaceans (49.6%) followed by octopus (6%), mussels (5%), salmon (4.6%), cuttlefish (4.1%) and squids (4%).

Finland is a small producer of processed seafood products both in terms of total quantities produced and in terms of products variety. Total quantities of raw materials used in 2021 were 71 248 thousand tonnes. The variety of species used was limited to salmon (38%), herring (35.7%), trout (19.5%) and the rest (6.7%) coming from various species. Sourcing is halved between domestic produced (53%) and imports (47%).

5 SOCIO-DEMOGRAPHICS OF THE EU FISH PROCESSING SECTOR

The social variables that should be collected for the processing industry are listed in table 10 in the COMMISSION DELEGATED DECISION (EU) 2021/1167, establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors.

The social variables that should be collected are: Employment by gender, FTEs by gender, Unpaid labour by gender, Employment by age, Employment by level of education, Employment by nationality, Employment by employment status, together with the other employment variables listed in table 10 in the regulation: Paid labour, Unpaid labour, Full-time equivalent (FTE), and Number of hours worked by employees and unpaid workers.

Although the regulation gives no guidance on how the data should be collected the PGECON workshop report from Vilnius in 2017, Athens, 2018 and provides recommendations on the data collection. While the Commission Decision does not require stratified data or combined variables PGECON recognised that reporting social variables at more disaggregated levels rather than at national totals and reporting combined variables would add value to the social analysis.

The following categories for social variables were recommended:

- Age categories: <=14, 15-24, 25-39, 40-64, >=65, unknown.
- Education categories: High, Low, Medium, unknown.
- Gender categories: Female, Male, unknown.
- Nationality categories: EEA, EU, national, non-EU/EEA, unknown.

PGECON recommended that social data should be reported (raised) for the total population and that the sampling strategy and size should be reported.

STECF EWG 22-14 Social data in fisheries proposed to split the age class 40-64 into 2 categories 40-54 and 55-64. RCG ECON included it into Economic Issues Regional Work Plan for data collection in the fisheries and aquaculture sector 2025-2027.

Table 5.1 MS which had provided the social data, 2020/21

Country	Gender	Age	Education	Nationality
BEL*	Y	Y	Y	Y
BGR	Y	Y	Y	Y
DEU*	Y	Y	Y	Y
DNK	Y	Y	Y	Y
ESP	Y	Y**	Y	Y
FIN	Y	Y	Y	Y
GRC	Y	Y	Y	Y
HRV*	Y	Y	Y	Y
LTU*	Y	Y	Y	Y
LVA*	Y	Y	Y	Y
MLT*	Y	Y	Y	Y
POL	Y	Y	Y	Y
ROU	Y	Y	Y	Y
SVN*	Y	Y	Y	Y
SWE	Y	Y**	Y	Y

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

*Data refers to 2020 (2021 data collection), **not RCG_ECON recommended age classes

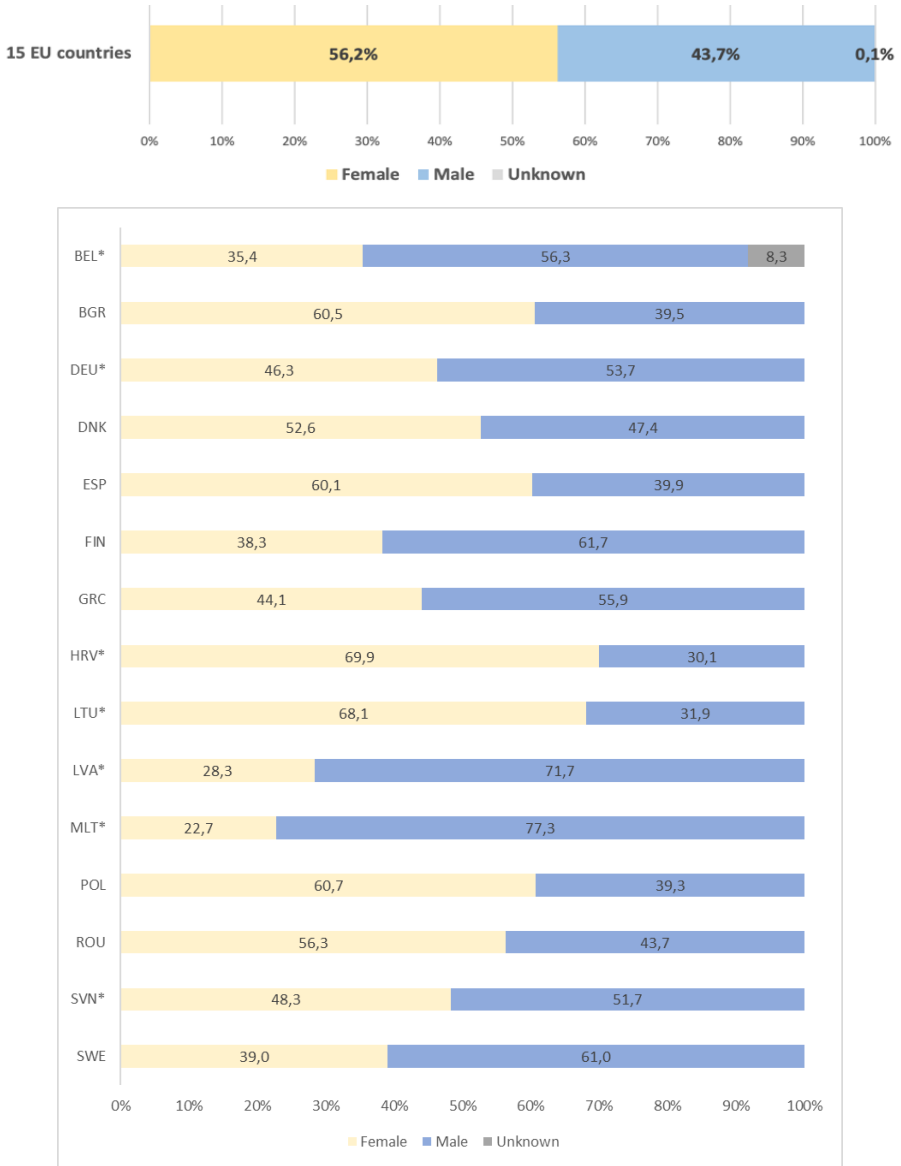
The following analysis of social variables include 2021 data provided by **8** countries under the 2023 DCF data call – Bulgaria, Germany, Denmark, Spain, Finland, Greece, Poland, Romania and Sweden. Due to the relative stability of the social data, the EWG 23-14 agreed to impute the social data provided by **7** countries, Belgium, Croatia, Lithuania, Latvia, Malta, and Slovenia for 2020 regardless of the reference year. The analysis will then cover **15** countries.

Member states collected social data at different levels. Some member states collected data at enterprise level, others at employee level. Similarly, to the economic data collection under DCF member states used different sampling strategies (e.g. census, probability sample survey, or non-probability sample survey).

5.1 Gender

In 2021, there were 78 177 people employed in the EU processing sector, equivalent to 71 607 FTEs.

Figure 5.1.1 Gender distribution by MS, 2020/21



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

*Data refers to 2020

Although there have been some variations compared to 2019 data, the proportion of females and males in the enterprises in 2020/2021 was quite equivalent, respectively 56.4% were female (50% in 2019), 43.4% were male (48% in 2019), while the unknown data has been reported only for

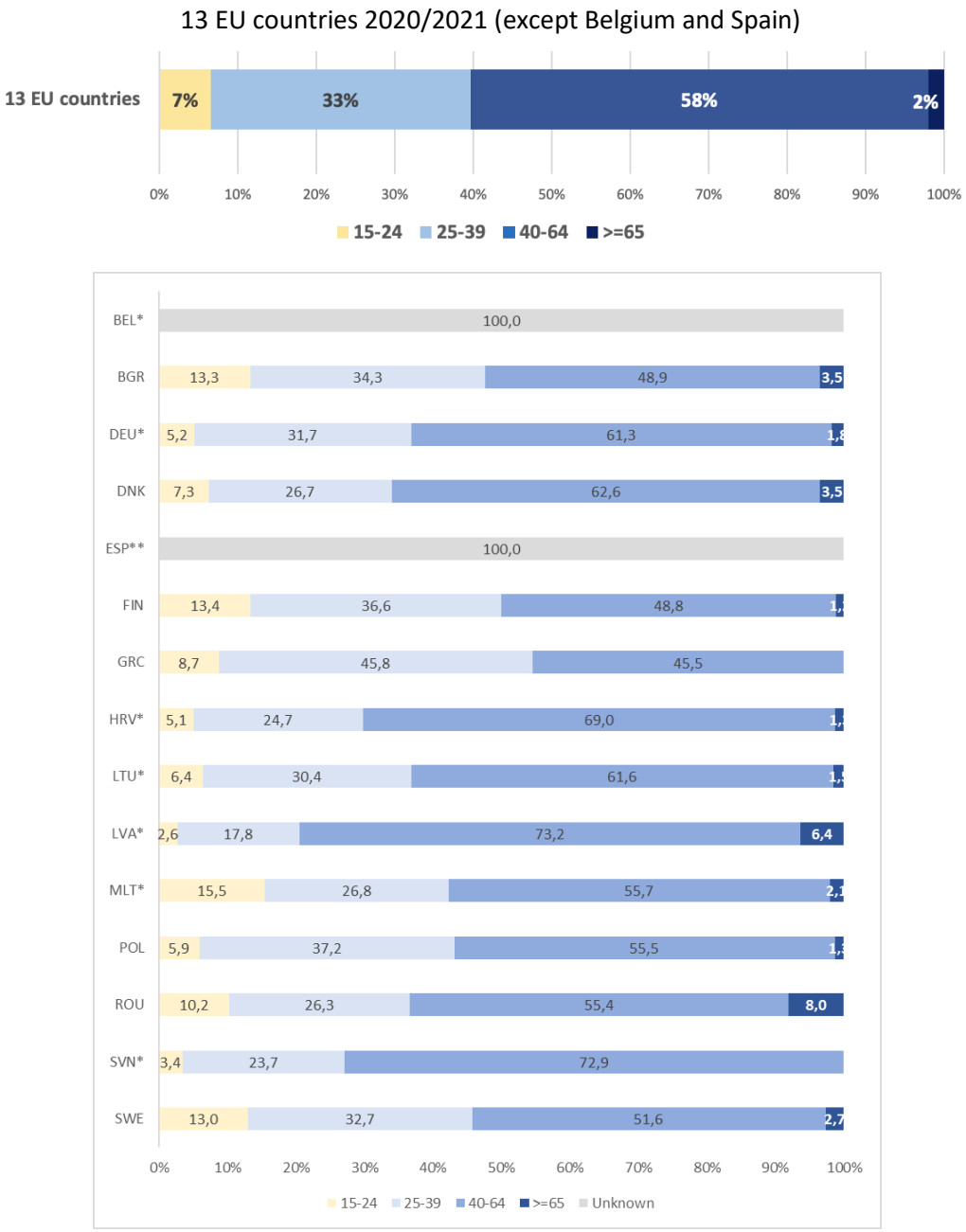
Belgium (100%). However, due to different population sizes (due to fact that data collection for processing industry is voluntary), the comparison of two datasets would not give reliable results.

Fifteen countries provided data for the gender of the employees in the processing sector. While in some countries, the percentage of female employees varied between 23% (Malta) and 70% (Croatia), in others like Romania or Denmark the proportion of male and female was almost equal.

5.2 Age

While some member states collected age-data based on the proposed age categories, others collected information in disaggregated age categories, which are comparable to the ones recommended by RCG_ECON or even the actual ages of individuals and assigned employees to one of the age groups. There were also member states that used their own categories, which were not comparable to the proposed age classes.

Figure 5.2.1 Age distribution by MS, 2020/21



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

*Data refers to 2020. ** not RCG_ECON recommended age classes

Overall, the 40-64 age class made up the largest proportion (56.5%) of people employed in the processing industry, followed by the 25-39 age class (32.2%). A further 6.5% were apportioned to the 15-24 age class, 2.7% to the over 65 years category and 6.6% were unknown.

The percentage of the age group 40-64 is highest in Latvia (73.7%), followed by Croatia (69%), Lithuania (61.6%) and Germany with 61.3%. Over 45% of the employees in Greece, 37% of the Romanian employees, and 37% of Polish and Finland employees were between 25 and 39 years old. Greece, Poland and Finland reported highest percentage of workers between 15 and 24 years, 46%, 37.2% and 36.6% respectively. Overall, the most favourable age structure of the employees has Greece, with 55% employees younger than 40 years, and Finland with half of employees being younger than 40. All countries except Slovenia and Greece, reported employees older than 65, with largest share of 8% reported for Romania.

Spain also provided the distribution by age, the age classes reported do not correspond to the age classes reported by the rest of the countries and, because of this, their data were not included in the EU analysis and comparison with other MSs. One country reported 100% unknown data.

5.3 Education

Member states were required to report education aggregated by low, medium and high levels.

The education level categories required were based on the International Standard Classification of Education (ISCED) academic qualification classifications. For more information on the ISCED levels included in the age, categories see Table 3.3.1.

Table 5.3.1 ISCED Academic qualification categories

ACADEMIC QUALIFICATIONS		
ISCED code	**ISCED Educational attainment levels**	**Education Level**
1	Primary	Low
2	Lower Secondary School	
3	Upper Secondary School	Medium
4	Post-secondary non-tertiary education	
5	Short-cycle tertiary education	High
6	Bachelor's or equivalent level	
7	Master's or equivalent level	
8	Doctoral or equivalent level	

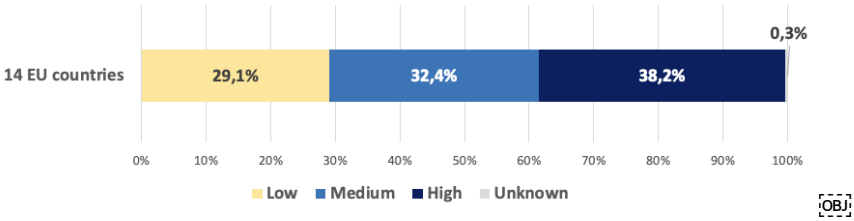
Fifteen countries reported on the education level of employees. Overall, the EU data demonstrates that 26.6% of people employed in the EU processing sector were educated up to a low level, followed by 44% with a medium level, 27.4% with higher education and 2% unknown.

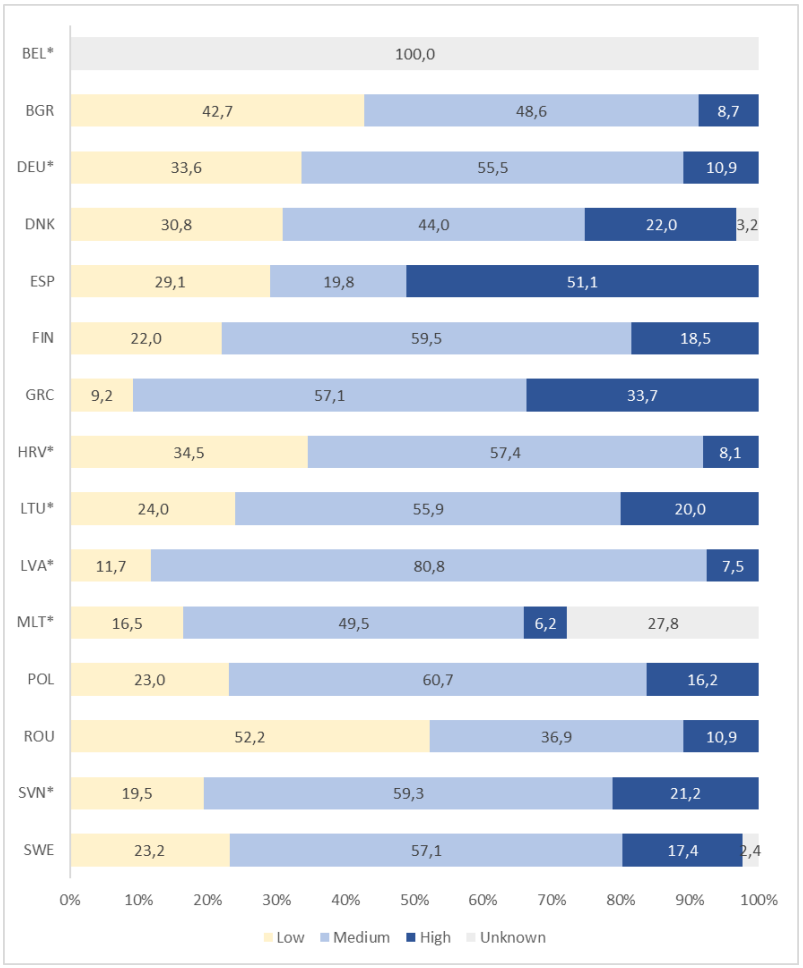
The percentage of the higher education group is highest in Spain (51%), followed by Greece (33.7%) and Denmark (22%). Large share of highly educated employees in Spain processing industry implies existence of the overqualified labour force and different types of vocational trainings provided to workers which are aligned with ISCED code 5.

Over 52% of the employees in Romania, 42% of Bulgarian and 34% of Croatian employees had a low education level. The percentage of the people employed in the processing sector with a medium level of education is fluctuating between 36% and 81% in the different countries. Five countries reported unknown level of education, Belgium reported 100%.

Figure 5.3.1 Education distribution by MS, 2020/21

- 14 EU countries 2020/2021 (except Belgium)





Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG

*Data refers to 2020

5.4 Nationalities

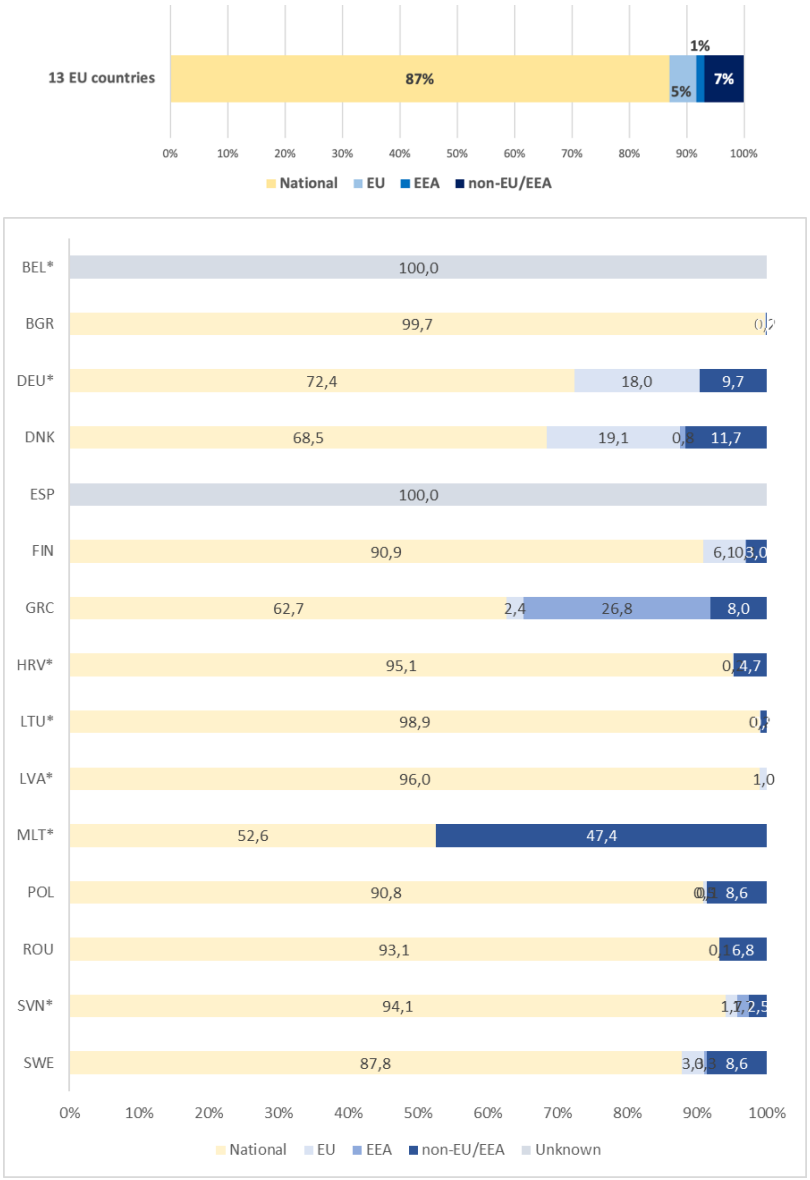
For all member states, it was recommended to report social data by nationality group. The nationality groups used were nationals, EU, EEA, non-EU/EEA and unknown. 13 countries reported on nationality, while two countries (Spain and Belgium) reported 100% unknown.

The majority (87%) of people employed in the EU fishing processing sector were nationals of their own country, followed by 7% from non-EU/EEA nations, 4.6% from EU, 1.5% from EEA and 0.2% were unknown (without Spain and Belgium).

In most of the MS, the national employees are the main employees. The proportion of nationals varied from 99.7% in Bulgaria to 52.5% in Malta. The other workers are mainly from non-EU/EEA countries.

Figure 5.4.1 Nationality distribution by MS, 2020/21

13 EU countries 2020/2021 (except Belgium and Spain)



Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG

*Data refers to 2020.

5.5 Socio-demographics by size classes

Table 5.5.1 MS that provided the social data by size categories of the processing enterprises, 2021

Country	Gender by size	Age by size	Education by size	Nationality by size
BEL *	Y	N	N	N
BGR	Y	Y	Y	Y
DNK	Y	Y	Y	Y
ESP	Y	Y**	Y	Y
GRC	Y	Y	Y	Y
HRV*	Y	Y	Y	Y
LTU*	Y	Y	Y	Y
MLT*	Y	Y	Y	Y
ROU	Y	Y	Y	Y
SVN*	Y	Y	Y	Y

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

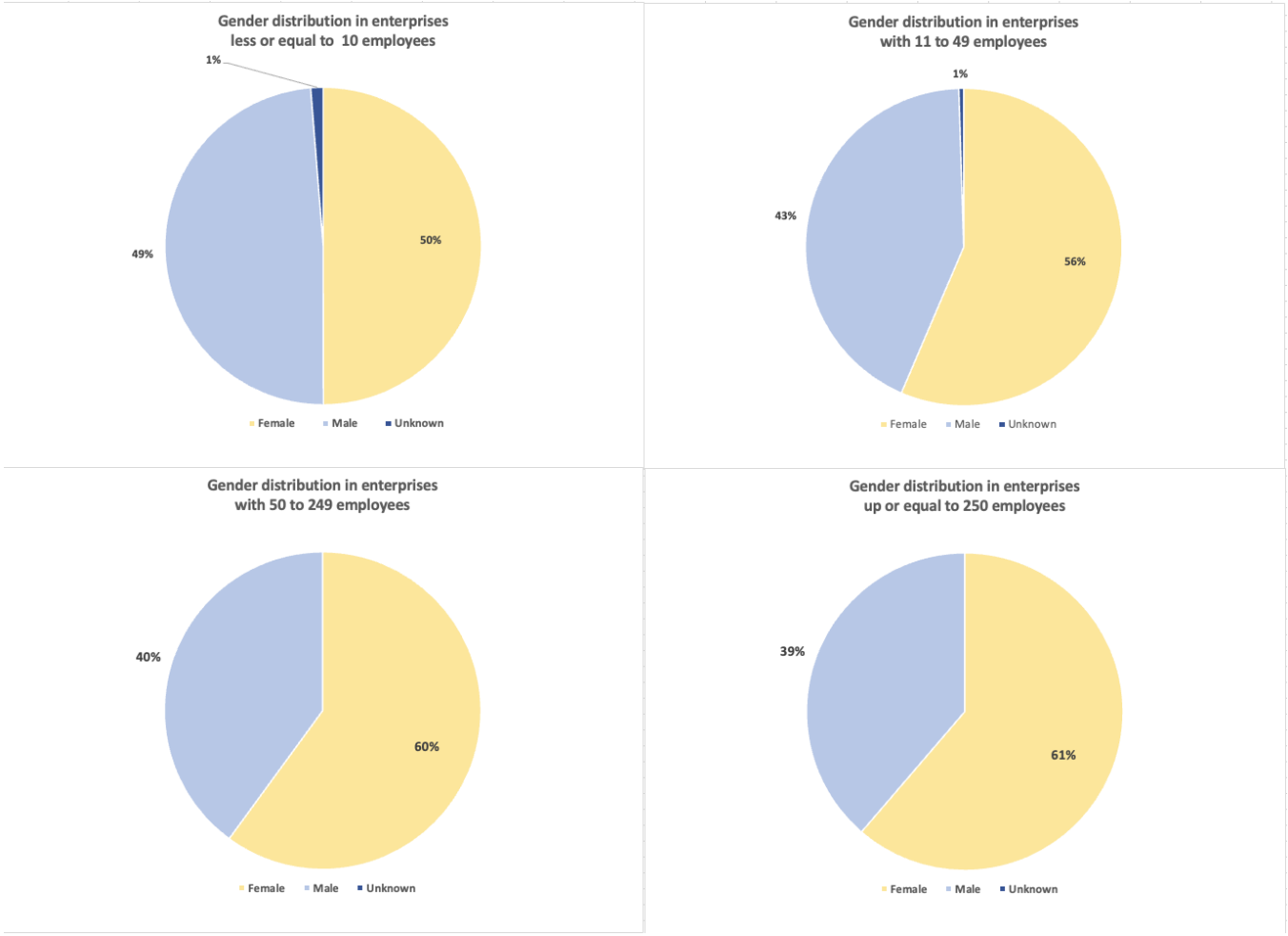
*Data refers to 2020, **not right age classes

5.5.1.1 Gender by enterprise size

These 10 MS mentioned below provided gender distribution by size categories of the enterprises: Belgium, Bulgaria, Denmark, Spain, Greece, Croatia, Lithuania, Malta, Romania and Slovenia.

The biggest proportion of female employees was in the largest processing enterprises. Females made up 46% of the total people employed in the smallest enterprises while reaching 61% in the biggest enterprises (60% in 2021). Half of the employees for the smallest enterprises (less than 10 and 11-49) are male.

Figure 5.5.1 Gender distribution by enterprise size, 2020/2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

5.5.1.2 Age by enterprise size

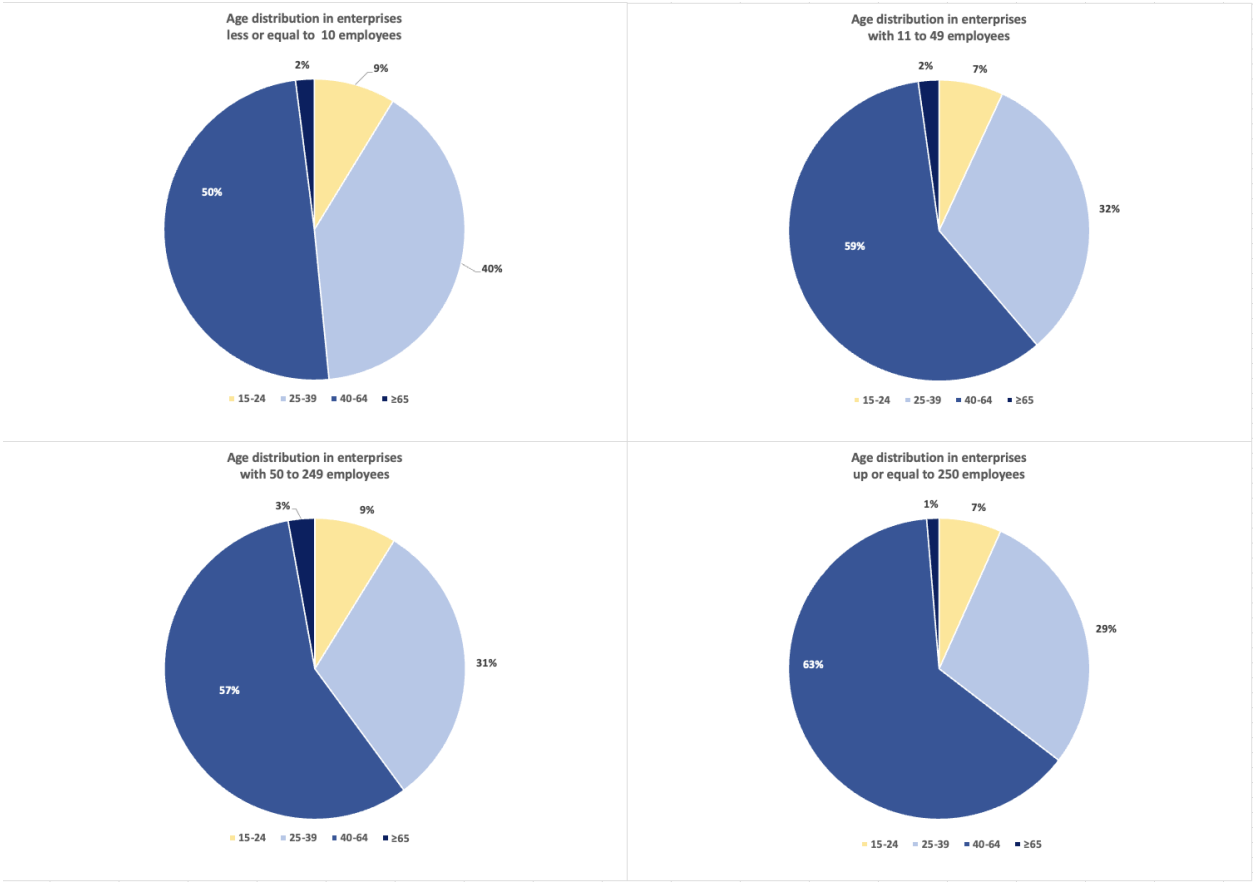
8 MS provided size categories of enterprises by age. However, EWG decided not to integrate

- Spain, because of non-similar age classes aggregation. The age classes reported in the social table do not correspond to RCG_ECON recommendations, therefore, had not been included in the graphs.

Belgium reported data for age classes as "Unknown", then was not integrated in the following graphs.

The percentage of people between 40 and 64 years was very similar for all enterprises bigger than 11 employees– between 57% and 63%. The structure of the age did not appear to be dependent on the size of the enterprise for the youngest age category which do not represent more than 9% in any of the size categories (7% to 9%).

Figure 5.5.2 Age distribution by enterprise size, 2020/2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

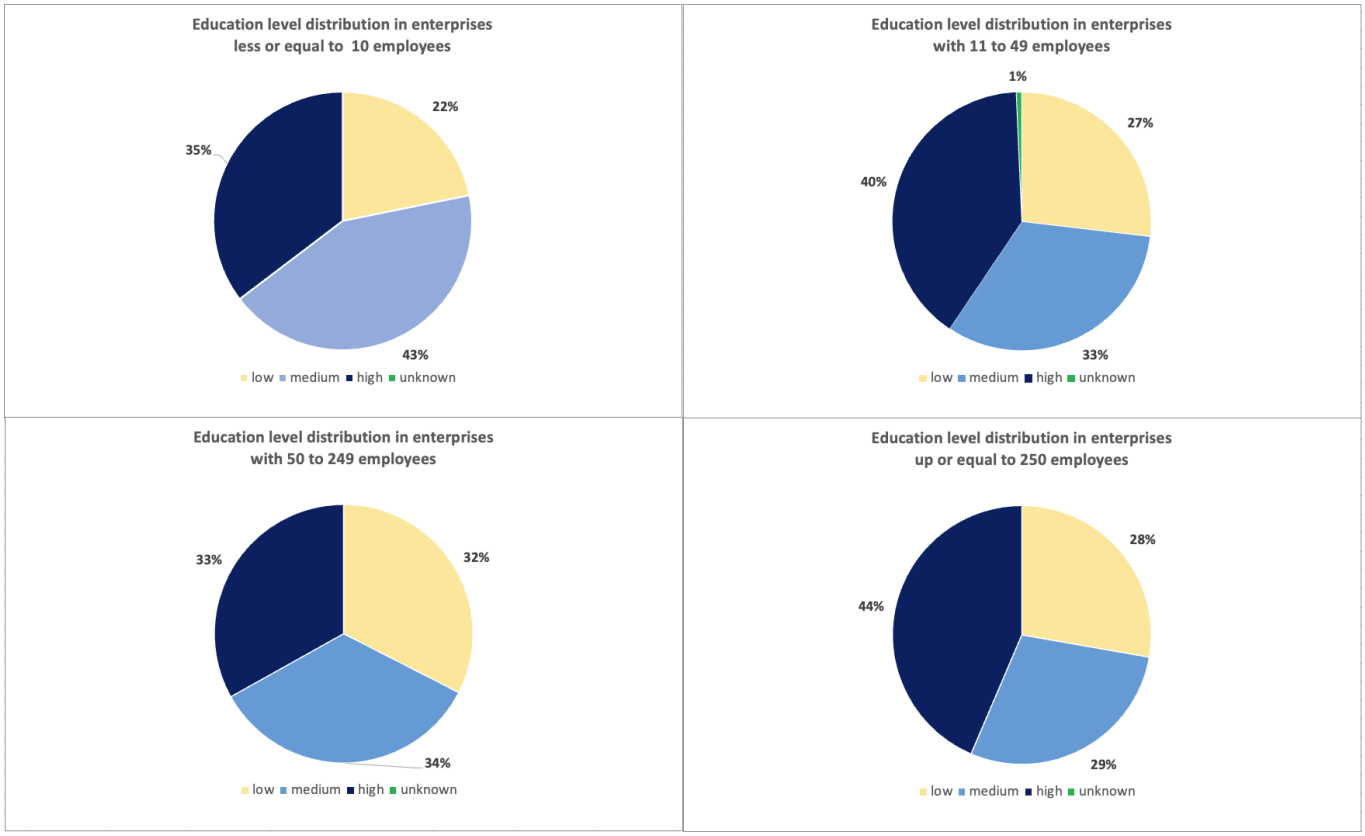
5.5.1.3 Education by enterprise size

9 MS provided education distribution by size categories of the enterprises - Bulgaria, Denmark, Spain, Greece, Croatia, Lithuania, Malta, Romania and Slovenia.

Belgium reported data for education as "Unknown" and is not integrated in the following graphs.

In the processing enterprises, high educated employees were less than 18% but reached 38% when we include Spain data (81% of the employees in this country reported high education level). The distribution of employees regarding their education level was not dependent on the size of the enterprises. The repartition is very similar upon age classes: 22% to 32% for low education, 29% to 43% for medium education, 17% to 25% for high education (38% to 44% when Spain is included).

Figure 5.5.3 Education distribution by enterprise size, 2020/2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

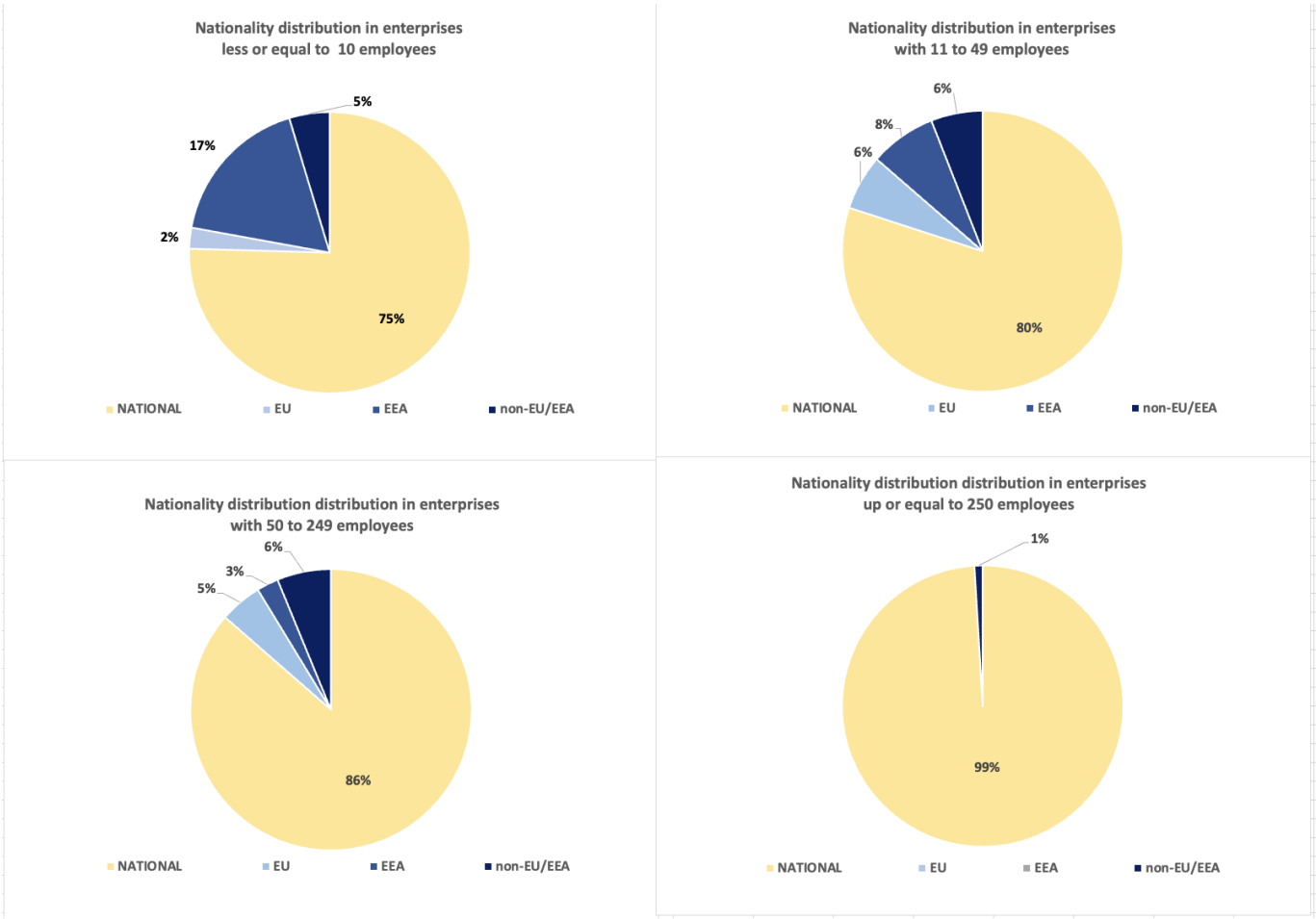
5.5.1.4 Nationality by enterprise size

8 MS provided education distribution by size categories of the enterprises – Bulgaria, Denmark, Greece, Croatia, Lithuania, Malta, Romania and Slovenia.

Spain and Belgium reported data for nationality as "Unknown" and are not reported in the following graphs.

The large majority of employees were nationals for all sizes of the enterprises (75% to 99%). The largest proportion of non-nationals was in the smallest enterprises – 17% EEA, 2% EU and 5% non-EU/EEA, the totality of employees from EEA countries are working in Greece (227 employees). The largest enterprises had less diversified employees origins.

Figure 5.5.4 Nationality distribution by enterprise size, 2020/2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

5.5.1.5 Comparison between the data collected under the 2023 Fish processing (STECF-19-15) and the 2021 Fish processing data call.

Although 3 data calls are not enough to draw conclusions about trends in the social characteristics of the employees in the sector, there are a few similarities that have been noticed.

Table 5.5.2 Member States reporting social data for the last three data calls

	Social Data Reference year		
Countries	**Data call 2019**	**Data call 2021**	**Data call 2023**
BEL	2016	2019	2020
BGR	2017	2019	2020
DEU	2017	2020	2020
DNK	2017	2019	2020
FIN	2017	2019	2020
GRC	2017	2019	2020
HRV	2017	NA	2020
LTU	2017	2019	2021
LVA	2017	2019	2021
POL	2017	2019	2020
ROU	2018	2019	2021
SVN	2017	NA	2020
SWE	2017	2019	2021

In most countries, which have provided data for three data calls, EWG 23-14 highlights the stability in the percentage distribution of females and males is less than 2%. The changes regarding the distribution of age classes in the MS are also not significant, they vary between 0.5% and 5% and the most negligible changes are in the age class 40-64 which is with the largest number of employees. However, in Bulgaria, the youngest class age was increased from 5% in 2021 to 13.3% in 2020. The age class 23-39 stayed stable. Similar is the situation with the nationality in which there are changes in some member states.

The reported distribution of education is the only variable that shows significant changes in some member states. In Romania, the level of education is lower in 2021 (52% of the total employees) than it was in 2018 (32% of the total employees). This trend is similar in most other MSs, but at a lower level. In Greece and Lithuania, the evolution measurement is not possible due to numerous "unknown" for the first data call.

In 2019, 17 countries collected social data and only 14 in 2021 and 15 in 2023. This number decreased with data by size enterprises: 10 MSs (8 in 2021) uploaded this information for gender but only 8 MSs for the three other variables (age, education level and nationality). This low number had an impact on the results and the trend between these three data calls (2019-2021-2023).

5.6 Main conclusions and data issues

The proportion of female reaching 56% characterised the sector. The 40-64 age class made up the largest proportion (58%) of people employed in the processing industry and most employees hold a medium education level (44%), followed equally by 27% of low educated and 27% of high educated employees. As far as nationality, the vast majority (87%) of people employed in the

sector are EU nationals of their own country, being the rest mainly workers from EEA. Greece and Denmark employ the most people from the EEA and other EU countries

As far as technical issues, by analysing the social data for the fish processing sector submitted for the third time under EUMAP, the EWG 23-14 has identified the following main issues that have impact, to different extent, the level and quality of the analysis:

- Germany, Finland, Latvia, Poland and Sweden did not provide data by size category. EWG 23-14 suggests MSs, wherever possible, to collect the social data by size classes as this would increase the accuracy of the analysis at the EU level.
- Belgium provided 100% unknown for the age, education and nationality.
- Spain and Sweden provided the age classes in different segmentation than the one recommended by PGECON and no values were provided for nationality, for this, their data were not included in the EU overview. To provide an accurate EU analysis and comparison among MSs, EWG 21-14 concludes that it would be advisable that all MSs will submit data according to the age classes recommended by PGECON.
- EWG 23-14 repeats the EWG 19-15 and EWG 21-14 conclusion that to provide an accurate analysis of the trends in the age population it would be advisable, for the future, to split the age group 40-64 into smaller groups (indeed, this group is the one with the highest share of employment, for some MSs being higher than 73%).
- Spanish workers represent 60% of the number of employees reported by size (age, education level, gender) for the 9 countries analysis in this report. Then comparisons are impossible with the last reports which did not include Spanish data.

6 MAIN DATA ISSUES ARISING FROM THE EWG WORK AND ANALYSIS

6.1 Timing of the EWG

The work of the EWG was strongly impacted by the availability of updated data series for some MSs, as Eurostat data for 2021 were available only on the last day of the meeting (October 27th). The release of Eurostat/SBS data seems, indeed, to occur towards the end of October. This impacted the possibility to finalise the those national chapters based on Eurostat data (because of MSs not collecting data for the fish processing sector under their National Work Plans, NWPs) and the analysis at EU level (considering that the EU dataset is the result of a match between DCF/EUMAP and Eurostat data) and obliged experts and the chair, in particular, to carry out substantial work after the end of the meeting. Most important, this hindered the possibility to focus on more qualitative discussions.

A meeting a bit later in the year could help the draft of the report in the future.

6.2 Harmonisation in data provisions by MSs

The analysis carried out by EWG at EU level was strongly impacted by the heterogeneity of data available, mainly caused by the optionality of the fish processing data collection. Because of this, the obligation to collect or not collect certain data is only determined by what included in the NWPs. The 2023 data call highlighted large heterogeneity in the data provision among MSs in relation to datasets coverage (e.g. not all the MSs collecting fish processing data collect also social data or raw material data). Furthermore, not all the MSs follow the RCGECON recommended categories for, e.g., social data and raw materials in volume (for details see the related sections).

6.3 Alternative segmentation

The comparability of the fish processing sector among European Union countries is considered significant for drawing conclusions regarding differences in economic performance and the cost structure of the sector within the European territory. However, in other sectors, such as aquaculture, the comparison is made among similar activities or species of cultivation (e.g., seabass seabream cages, mussel rafts, etc.). For the fish processing sector, comparisons are limited to the four size categories of companies based on the number of employees (≤10 employees, 11-49, etc.). This approach has some limitations, as the same size category can have significant variations in structure by type of activity across different countries. Therefore, in the case of comparison, for example, of the very small category (≤10 employees), large differences in energy costs may be attributed to variations in equipment energy efficiency, differences in energy prices by country, and possibly, the comparison of essentially two different activities, as there is a possibility that the category has a different distribution per activity, depending on the country to which it belongs. As freezing activity uses significantly more electrical energy compared to deshelling or filleting activities, a category with more freezing companies will present a higher comparative energy cost. Furthermore, it is highly likely that the rate at which the production cost will increase in cases of exceptional rises in energy prices is largely disproportionate, thus having a non-uniform impact across different fish processing activities. Similar cases may exist in categories that utilize different structures of production means (personnel, specialized high-tech fixed equipment, etc.).

If we add the dimension of sustainability, the environmental impact of activities, the carbon footprint of all production stages, and the environmental consequences of choices for reducing production costs, it becomes apparent that a different segmentation of the available information in the fish processing sector, by activity of processing, can provide additional data compatible and useful for drawing a broader range of conclusions in the study of the industry.

7 MEMBER STATE SUMMARIES

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
Austria	The fish processing industry in Austria consisted, in 2021, of 8 enterprises with an estimated total income of EUR 45.8 million employing 150 people corresponding to 124 full time equivalent. From 2008 to 2020, the Austrian fish processing industry exhibited consistent growth in its Gross Value Added (GVA), even as the number of enterprises declined, particularly after 2015. In 2020, there was an 8% increase in GVA compared to the previous year and a slighht decrease in 2021. In contrast, Gross Profit followed a relatively stable trend throughout the 2008-2021period, with a 5% increase from 2019 to 2020 and a subsequent decrease in 2021.	Due to higher prices of raw material and energy, we can expect a slower growt or even stagnation of the Austrian fish processing sector.	same as for 2022
Belgium	In 2020, the fish processing industry in Belgium consisted of about 65 enterprises with fish processing as their main activity, and of 143 seafood companies exerting fish processing not as main activity. Even though the sector is relatively small, at a local level it is of considerable economic importance. Moreover, the sector creates indirect local economic turnover and employment availability. Despite the obstacles that the fish processing sector had to overcome in 2020 and 2021, the fish processing enterprises have kept moving forward during the current crisis. Planned investments in machinery and buildings have not been postponed. Importantly, the fish processing sector remained focused on innovation and sustainability.	The biggest impact on the Belgian fish processing industry is expected to come from the Brexit and the Ukranian war. I.e. the war had an impact on the inflation and on energy prices. The inflation has not only affected the companies (increasing cost for wages), but has also influenced the byuing behaviour&habits of consumers. However, there is no quantification yet of the impact available, neither if this would be postive or negative.	
Bulgaria	The growth of the Bulgarian processing sector continues and in 2021, the number of registered enterprises grew up to 70. Definitely, the support provided by the Operational program for 2014-2020 period under EMFF play a significant role for the positive influence for the sector. This is more than visible from the increase of the number of enterprises and generated turnover by the fish processing industry in Bulgaria. In 2021, the number of enterprises increased by 9% compared to 2020 and by 27% compared to 2019. The total number of employees in 2021 increased by 17% compared to 2020 and 16% compared to 2019. The total income of the Bulgarian fish processing industry was stable during the period 2016-2018. In general, for the whole period, 2008-2021 the situation is improving gradually except 2020 when a small decrease was observed. The economic performance is		The decrease in both imported and exported seafood in 2023 is definitely a sign of a decline in the turnover, which cannot be compensated for the domestic production from fisheries and aquaculture.

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
	also growing. The Gross Value Added is increasing each year except in 2020 and in 2021 increased by 72% compared to the period 2008-2020. Similar is the situation with the operating cash flow and net profit. In 2021, the net profit increased by 60% compared to 2020 and by 146% compared to the average for 2008-2020 period.		
Croatia	In 2021, the Croatian processing industry consisted of 33 companies with processing as a main activity employing 2229 employees (1885 FTEs). The turnover in 2021 increased by 5% to a record value of EUR 139 mil. GVA also increased by 5% reaching EUR 61,9 mil. Due to new cycles of investments (EUR 13,2 mil in 2021), dept also reached a record high of EUR 136,7 mil. Although export decreased in 2020 due to COVID crisis, in 2021 it reached the values from 2019. After challenges emerged during 2020 due to COVID crises, the sector recovered and focused on investments into new equipment and technologies. The main source of the raw material is a domestic catch of small pelagic fish, but the industry tends to diverse the production and vertically integrate fishing activities, aquaculture and processing.	During 2021 and 2022, the sector mostly recovered from disruptions caused by COVID crises. However, it could be expected that the increase in energy prices and inflation could affect the profitability of the sector and increase of the final product prices. Due to ongoing investments, further quality control, certification, innovations (development of products with added value) and diversification of raw material sources could be opportunities for further growth.	Increased energy prices and inflation could lead to slowing down the growth and weaken economic performance, especially for smaller companies. Also, it could be expected to increase the number of non-EU/EEA workers in the sector.
Czechia	In 2021, according to Eurostat data, there were 20 enterprises whose main activity was fish processing in Czechia, as was in previous year. The total number of employees in the Czechian fish processing industry decreased by 4% to 762, while employment measured in FTE decreased by 3%. The total income in 2021 was record high for the 2008-2020 period and reached EUR 120 million and compared to 2020 it increased by 20%. The growth of total income of fish processing in Czechia was continuous for the last 7 years and in 2021 was higher by 33% compared to multiannual (2014-2020) average	For 2022, production of processed fish produce decreased by 3% to 8 664 tonnes.	
Denmark	In 2021, the total income of the Danish fish processing industry reached EUR 2.3 billion, which was an increase of 1% compared to 2020, but a 6% decrease compared to 2019. The total cost of production reached EUR 2.2 billion in 2021, which was 1% higher than in 2020, but a decrease of 9% compared to 2019. The net profit was positive and increasing compared to the years 2019 and 2020. The most important cost component is the purchase of fish and other raw materials, which makes up for 73% of the total cost. Energy cost only make up for 1% of the total production cost. In 2021, there were 90 enterprises in the Danish fish processing sector. The sector is dominated by small and middle-sized enterprises.	Brexit and the conflict in the Ukraine have been a challenge to the industry, however it seems that the sector has adapted quite quickly to the changes. However, the inflation have been high, which have affected price on both input (raw material) and output prices. It is still difficult to evaluate if this change have been a negative or positive driver in the the processing industry. Furthermore, the increasing inflation have affected	A continuation of the Ukraine war will affect the industry if energy prices rise and if the general economy slows down due to the conflict. However, so far it only seems to have affected the industy to a minor extent like all other food producing industries. The Brexit negotiations and issues related to fisheries and the fish processing industry have been finalized. This is

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
		consumers purchasing power, which have affected the purchasing pattern of consumers. However, it is difficult at this point in time to say how much this has influenced on the fish processing industry.	a positive thing for the industry, becuase the uncertainty about access and landings has been reduced. The inflation is reduced in Denmark and EU, which may also reduce uncertaity on future prices, which again is a positive thing for the industry.
Estonia	The overall economic situation in the sector was good in 2021. Both exports and sales to the domestic market increased. Among other things, sales to the hotels, restaurants and catering sector, which had declined in the previous year due to the pandemic, increased. The second half of 2021, however, brought a new concern for operators – rising energy and raw material prices. Comparing the economic performance indicators between 2020 and 2021, then GVA decreased slightly by 3% to EUR 29.5 million in 2021. Gross profit underwent a rise (54%) and reached to EUR 4 million.	Since Ukraine is one of the main export partners for the Estonian fish processing industry, the Russian invasion to Ukraine may have a significant impact on it. According to the data of the Statistics Estonia, the export volume of fish products of Estonian origin to Ukraine decreased by 10% in 2022. Military activity also keeps energy prices high.	The year 2023 will continue to be difficult for fish processing sector, as military activity keeps energy prices high and restricts the export to Ukraine. Also problems with raw materials may arise, as the quotas of two key species (sprat and herring) will decrease in 2023.
Finland	The turnover of Finnish fish processing industry was record high EUR 424 million in 2021, but due to increasing operational costs, the EBIT and net profit turned to negative. Energy costs rose up 40%, while other operational costs increased 24% and wages and salaries of staff 10%. In 2021, fish processing enterprises used 72 thousand tonnes of fish as raw material, 38 thousand tonnes were domestic fish, and 34 thousand tonnes were imported. Salmon made up 38% and Baltic herring 35% of the raw material used in 2021.	The war in Ukraine accelerated food price increases in 2022. Problems in the international salmon trade and insufficient supply were reflected in the Finnish fish market as well. The price of fresh salmon increased significantly. Exceptional increases in food prices, lower consumer purchasing power and higher fish prices weakened the competitive position of fish.	The continuation of the war in Ukraine in 2023, the slow development of the Finnish economy and consumer caution weaken the outlook for the fish market. Fish processing companies are cutting costs, reducing their product range and focusing on producing volume products. The high price of salmon and other fish raw materials will affect the product portfolio of the processing industry
France	The turnover of French fish processing industry slightly decreased between 2012 and 2020 as the number of employees. However the number of enterprises had increaded by 6% during the same period. The covid 19 had an effect on the consumption composition in 2020. After the Covid-19, the customers tent to continue to buy more sea product than before the crisis, however they privilege fresh products. They tend to be more interested by origin, quality, traceability and animal welfare while buy seafood	Due to higher prices of raw material and energy, we can expect an increase or even a decrease of the Fench fish processing sector value of sales. The fish price is increasing and the consumer modified their behavior with sacrificial purchases, like fish.	same as for 2022

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
Germany	Turnover remained stable between 2019 and 2020 and decreased by more than 4% in 2021. The total numer of enterprices styed stable, but numer of employees decreaded by arround 8%. The share of raw material origin changed to 59 % raw material from non-EU countries. The raw material is dominaed by products from fishery and the most important species is Alaska pollock with 39 %	Due to higher raw material and energy prices, the fish processing industry in Germany is expected to decline. Production volumes will decrease and due to rising fish prices, consumers will change their habits and either buy/consume fish more consciously or rather use inexpensive fish products. In addition, some companies will reorganize their production or product range or even close their German production sites.	same as for 2022
Greece	Fish Processing sector in Greece 2020 and 2021 saw a notable upturn in the sector's revenue, with 2021 experiencing a 12% surge compared to 2020. During the same period, other sources of income witnessed a more significant increase of 40%. In general, 2021 turnover was 581 mil compared to 2020 turnover of 468 mil. Production costs increased as well, demonstrating a 24% rise (508mil. in 2021 compared to 410mil. in 2020 due to increases of wages, energy and raw material costs. The capital value also increased due to new investments. Net profit saw a 42% increase in 2021 compared to 2020 (53.2mil. in 2021, 37.5mil. in 2020).All productivity and performance indicators increased as well except GVA margin.The rise of fresh fish prices boosted the demand for products in the fish processing sector by distributing its products in tourist areas that were previously dominated by the consumption of fresh fish.	The demand for processed fisheries products is expected to remain high, as the touristic arrivals remain high in Greece. While the significant increase in seafood processed product prices is attributed to inflation, the demand for this niche market is expected to remain robust. Local consumption of lower-priced items, such as frozen crustaceans and cephalopods, is also expected to endure. On the other hand, the increase of raw materials price is expected to last for aquaculture products and high value fisheries products. The prices of imported low value crustaceans and fish expected to remain stable or with marginal increase. The increase in energy costs began to be recorded in the industry from 2020, well before the impact of the war in Ukraine and have since increased dramatically. Inflation causes an increase in the prices of supplementary raw materials such as oil and spices, among others. Those ongoing increases in	Same outlook for 2022 but In the event of continued inflation and in the case the war in Ukraine will continue leading to increased energy prices, the economic situation of companies in the industry is expected to further deteriorate.

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
		production costs are expected to limit business profitability for the year 2022	
Hungary	According to SBS data, in 2021, the fish processing industry in Hungary consisted of 17 enterprises with an estimated total income of EUR 10 million employing 158 people corresponding to 131 full time equivalent. The industry mainly consists of very small companies: 76% of the total was represented, in 2021, by enterprises with less than 9 employees. The number of employees has fluctuated over the years independently from to the number of enterprises, reaching a peak in 2020 (321 employees). From 2013 to 2021, the Hungarian fish processing industry exhibited consistent growth in its Gross Value Added (GVA).		
Ireland	The positive growth in economic performance indicators of Gross Value Added (GVA) and gross profit for 2020 reflect leveraging of domestic consumption demand by processors serving retail service channels. However, this may not reflect the reality of the economic situation for all processors as the effects of Covid were not heterogenous across the sector. Some processors partially mitigated against the negative shock by diversifying into the domestic seafood market, other processors such as shellfish operators were more exposed to the shock as international export markets contracted sharply. Taken within the context of falling production value and income which fell 4% and 5% respectively, and the deterioration of export market conditions, processors were negatively impacted in 2020.	Brexit and conflict in the Ukraine pose substantial challenges to the sector. Increases in bottom line costs for the sector are expected driven by administrative and logistical difficulties and rising energy costs in the backdrop of Brexit and Ukrainian war. Raw material availability also poses a challenge for Irish processors key import markets to the UK are impacted and quota reductions continue, further increasing costs as competition for sourcing inputs rises. The sector will also have to tackle the impact of inflationary pressures on global food prices and consumption demand impacting competitiveness of exports and demand for Irish seafood.	The continued resilience of the industry will be tested as the sector deals with the fall-out of Brexit, rising input costs caused by conflict in Ukraine and labour supply and retention challenges.
Italy	Despite the Covid-19 pandemic, the Italian fish products processing industry showed resilience and growth in 2020-21. The industry had a turnover of 2.5 billion euros, with 467 farms. It also employed 6.585 workers, equivalent to 5.251 full-time jobs, contributing to the social welfare of the country. However, the industry also had some difficulties, such as the high energy costs (+18% higher than the average of the last three years), and the rising costs for services, mainly related to transportation and logistics. These costs were more challenging for medium-sized farms, which relied more on domestic sources of raw materials, while large farms could benefit from international supplies. The industry used	The outlook for the industry in 2022 is uncertain, as the household consumption of fish products in Italy is expected to stay below the pre-pandemic levels (a decrease of -0.4%). This is due to the inflation of food and service prices, which has made consumers switch their spending to cheaper products.	The outlook for 2023 is uncertain referring to the consumers. Indeed, the analysis also explores some possible new consumer trends, such as reducing food waste, buying less quantity but higher quality products, which could result in an average price increase of about 1.8-

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
	different strategies to deal with these challenges, depending on their size and market position.	Consumers are also expected to be more careful in 2023, especially in buying durable goods and services outside the home, such as eating out. This could have a negative impact on the demand for fish products from the restaurant sector, which is a key customer of the Italian processing industry.	2%. These trends could affect the performance of the processing industry for some products, such as canned salmon and tuna, smoked and canned products in general.
Latvia	In 2021, there were 96 enterprises whose main activity was fish processing in Latvia. Compared to the previous year the total number of enterprises increased by 5%. The total number of persons employed in the Latvian fish processing industry was 2 776, corresponding to 2 567 FTEs. Compared to 2020, the total number of persons employed and FTEs increased 5% and 9% in 2021, respectively. The total income was EUR 238.2 million in 2021, increasing 5% compared to 2020. The overall economic situation in the sector was good in 2021. Both exports and sales to the domestic market increased. GVA increased by 1%. However, there was a fall in Gross profit.	Since Ukraine has been an important export partner for Latvian fish processing industry, it could be assumed that the Russian invasion to Ukraine has a negative effect on exports. According to the data of the official statistics of Latvia, the value of exports almost doubled (88%) instead of that in 2022 because the demand for the prepared or preserved fish product group increased dramatically. However, the military activity has an increasing effect on production costs through rising energy and raw material prices	
Lithuania	Total income, generated by Lithuanian fish processing industry increased by 5% in 2021 to record high EUR 622.8 million. In 2021 industry generated EUR 111.6 million of GVA and decreased by 4% compared to 2020 mainly due to the rise of raw material cost. However, it was still 34% higher than multiannual 2011-2020 GVA average. In 2021 net profit decreased by 25% to EUR 28 million due to growth of raw material costs and labour expenses. However, net profit was 8% higher than multiannual 2011-2020 multiannual average. Net profit margin in 2021 was 4.5% and declined from 6.3% in 2020.	in 2022 total income of fish processing industry with a main activity increased by 7% to EUR 664 million. Costs for raw material increased by 4% compared to 2021, crew wages by 8%, whereas energy costs, due to the war in Ukraine and following energy crises, increased by 70%. However, energy costs contribute to total operating costs only by 2%. Increase in energy prices indirectly affected profitability of fish processing industry, mostly by the increased transportation costs, shipments of raw material (reflected in the price of raw material),	According to preliminary data, income from fish processing industry with main activity in 2023 is expected to increase by 3%, while processed quantity could decrease up to 9%. Correspondingly prices of processed fish produce will further increase during 2023, affected by high inflation in Lithuania, further growth of employee wages (minimum wage is expected to rise in 2024) and increases of raw material prices.

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
		increased price of packaging material. Net profit in 2022 increased by 18% to around EUR 33 million.	
Malta	The Maltese fish processing industry is small, with just 7 enterprises focused on tuna, sardines, and marine species. Most firms have ≤10 employees. Industry turnover rose 40% in 2020 to €40 million due to new entrants and performance gains. It increased further to €47 million in 2021 as the sector rebounded post-COVID. Employment grew in 2020-2021, reaching 112 people. After turning profitable in 2018, net income kept rising, hitting €4.5 million in 2020 and €3.3 million in 2021. The sector is divided into two segments that both saw higher turnover and profits in 2020-2021 despite mounting costs. Employment also grew in both groups. Productivity fluctuated due to changes in gross value added. The workforce is predominantly male and middle-aged. Educational attainment is moderate, and over half of workers are maltese. Exports go mainly to Japan, Italy and South Korea, while imports come primarily from Morocco, Netherlands, Italy and Spain. Overall, the industry demonstrated resilience during COVID, with climbing sales, earnings, and employment in 2020-2021.	In 2022, the industry faces challenges from input cost inflation and energy price volatility. Raw material costs are rising amid broader inflationary pressures. Though energy costs spiked 45% in 2021, government subsidies on energy prices should help stablisie further volatility caused by geopolitical conflicts. Strategic management of costs and supply chains will be key determinants of 2022 industry performance. Government relief on energy prices can help maintain profit margins. Export marketing focused on high-value Maltese seafood like bluefin tuna remains an opportunity during uncertain times. Overall, prudent cost control measures and sales growth emphasis can allow the industry to navigate 2022's headwinds.	Heading into 2023, inflationary pressures, energy costs uncertainties, and potential supply chain disruptions will likely persist as challenges. The extension of energy subsidies by the government also in 2023 should provide relief on a majorly volatile input expense.
Netherlands	After the challenging of falling demand due to COVID-19, the Dutch fish processing industry has in general transformed to supplier for premium value added seafood products. By the excellent logistic facilities (harbor of Rotterdam and small inland distances for lorries e.g.) the Dutch enterprises did perform better in economic terms by importing directly from third countries (Norway, Iceland, China, Turkey etc.) with higher gross margins from adding value to these raw materials. More and more farmed salmon is imported and processed by the Netherlands. Despite the Eurostat SBB 2021 data is not yet available it is expected that the tunrover and GVA will be increased.	Energy costs are major issue to processor due to the Ukraine-Russian war. However many enterprises succeed to reduce energy consumption in terms of unites of gas and electricity usage. The industry does flourish by increasing imports and adding value to these FAPs. It is expected that turnover and GVA will improve compared to 2020.	Inflation is the major concern for 2023. More and more retailers are substiting by increasing local landed (often wild capture) fish prices. It is therefore expected that GVA will stabilize or deteriorate.

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
Poland	The presented economic and financial situation of fish processing plants positions this sector as functioning in a stable manner. The positive image of the industry was maintained also during the pandemic, and the results achieved in 2020 were among the highest in the last decade. In 2021, revenues for the industry as a whole increased (3%), but much slower than production costs (19%). This resulted in a deterioration of financial indicators, which, however, remain stable when looking at the entire industry. The time of the pandemic and the related rising costs of raw materials and production components resulted mainly in the deterioration of the financial results of micro, small and medium-sized enterprises, which, despite growing revenues, created a financial loss.	The industry is negatively affected by global inflation factors, including the effects of the war in Ukraine. The very large increase in production costs (both raw materials and energy) cannot be taken into account in sales prices, which are nevertheless growing at a pace unseen in recent years. This limits export opportunities and reduces internal demand for some fish products, which in turn leads to a decline in production in fishing industry plants. Production in the fish processing industry amounted to 604 thousand tons in 2022 and decreased by only 2%, while its value increased by 16% to PLN 16.8 billion (Statistics Poland)	Decrease in volume of production but improvement of the economic and financial situation in the first half of 2023.
Portugal	After three years of growth, considering the COVID19 impact equal way for all inputs, consumption in Portugal declined in 2021, registering a 4% decrease from 2020, and reaching 75.8 thousand tonnes. From the 166 enterprises in 2018, in 2020 there are only 150 (a total income of EUR 1.257 billion). In 2021 there is already 157 enterprises, employing 8,433 people (no change between 2020 and 2021), with an average personnel cost up to 17.4 thousand euro/employee in 2020 (+4.8% from the previous year). Total wages and salaries increased drastically from 2018 to 2020 (+12%). In 2021 Portuguese fish industry produced 244 thousand tonnes (129.4 in the frozen and fresh sector, 60.2 in the salting sector and 54.4 in cannery and preparation). Some important economic indicators, as GVA and Gross Profit show a general increasing trend for the decade. The Value Added at factor cost in production value, with a constant growing since 2012, represented 21.1% in 2020.	Economic and social performance that affects the sector is increasingly stabilized, even growing. Brexit effect was, somehow, minimized by the behaviour of the internal market and exports. The fish industry became under a strong demand from the domestic market (including the tourism and gastronomic demand), and their expectatios are based on the product valorisation and the investments made related with innovation and modernizing processes, and circular economy. The international trade, both import and export, gain considerable dimension (+17% on exports, +24% on imports from 2021).	The geopolitical instability, mainly the Ukrainian conflict, put considerable pressure on prices and raw material availability. Even so, Portugal dependence in imports of raw material still increased: tourism did grow considerable, and with it the demand for fish and seafood products, depict the international price changes. The aquaculture products seem to gain space to the traditional fishing ones.

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
Romania	The Romanian fish processing sector consisted of 18 enterprises, in 2021. The structure based on the number of employees has changed by increase 33% in segment <10 employees, decrease by 10% in segment between 11-49 and increase by 25% in segment having 50-249 employees. In 2021, the performance in economic terms has increased; the turnover was EUR 135 million (up by 33% compared to 2020), average wage also increased by 35% to EUR 12.2 thousand. Regarding employment indicators, FTE per enterprise has decreased by 8% to 78.859.5 in 2021, and unpaid work has declined by 6% to 4.3%. In 2021, the total income for the Romanian fish processing industry reached EUR 137.3 million, which was a decrease of 34% compared to 2020. Covid-19 has not negatively impacted the fish processing industry in Romania. The sector recorded record values of economic indicators in 2021, for example, net profit reached the value of EUR 41.7 million, which is an increase of 274% compared to the previous year.Debt also demonstrated significant decrease in the 2021-2020 period, droping from 37.6mil in 2019 to 2.4mil in 2021.	Romania's fish processing sector had all economic performance indicators increase more than 100% in 2021 compared to 2020 with total production costs increasing by only 5%. The economic performance of the sector shows the potential for a continued upturn	Same outlook as for 2022
Slovakia	According to Eurostat data, in 2021 Slovakia had 4 fish processing companies, which sold EUR 34.9 million of fishery products. There were 322 persons employed in the fish processing industry in 2021. The sector recorded a value added of EUR 6.9 million, covering 1% of the value added of total manufacture of food products. All economic indicators decreased.		
Slovenia	Between 2020 and 2021, the turnover has increase by 33%, while the profit has decreased by 67% in the same period. GVA and OCF have decreased for 27% and 59%, respectively, in the same period. We recorded also decreasing of EBIT by 97% in the period from 2020 to 2021. The decreased value of performance indicators is mainly due a large increased value of other operational costs, as a result of structural changes made in Slovenian fish processing sector. Other operational costs increased significantly in the period 2020-2021 (+62%).	The fisheries processing industry in Slovenia is projected to grow, leading to increased revenues. However, this growth may result in intensified competition, causing a decline in fish product prices and subsequently reduced profits. Additionally, the industry is expected to face further challenges due to the substantial rise in energy costs, particularly in 2021 and 2022.	same as for 2022

COUNTRY	OVERVIEW ON THE 2020/2021 PERFORMANCE	OUTLOOK ON 2022	OUTLOOK ON 2023
Spain	The negative impact of Covid on the economic results in the short term was not as great as initially expected. The turnover of the Spanish fish processing industry decreased 1% in 2020, but production cost decreased by 5%, what resulted in better economic results. However, as already suggested in the previous report, medium and long-term impacts seem to be more related with macroeconomic factors such as the rise in production cost and the inflationary environment. In the medium term incomes grew again in 2021, but operational costs grew more proportionally, negatively affecting profitability indicators. Furthermore, seafood consumption in Spain show sharp falls in 2021, generated by the increase in prices.	Household consumption of seafood products in Spain decreased by 16% in 2022 compared to 2021. The inflationary context is affecting consumers purchasing power. The internationalization of the industry in recent times has improved the competitiveness and resilience of the industry. After a reduction of external trade in 2020 due to the drop in the industry activity during the pandemia, the positive evolution of imports and exports during 2022 will be a key factor given the deterioration of the domestic market.	Inflation is a major concern. During 2023 prices have continued to rise. In this context, it is to be expected that if seafood consumption continues to fall, employment and economic results will be negatively affected.
Sweden	The turnover in Swedish processing industry was declining in 2020/2021 but net profit was positive. Energy costs increased by 17 % in 2021 and a small increase in raw material costs occured. The smaller size segment was increasing in number of companies as well as total share of the turnover. Two larger investments in processing facilities where seen creating an increase in net investments.	Due to the war in Ukraine increased costs for energy (fuel and electricity), transports, raw material and packaging have impacted the fish processing industry. Increased energy costs have, during limited time periods, kept fishermen from fishing and fish processing industry from maintaining ordinary production pace.	After a winter with high energy costs and high insecurity the production conditions are more stable, however not on the same level as before the war in Ukraine. There is an growing interest from parts of the Swedish fish processing industry towards bigger utilization of the raw material as well as increased landings for human consumption. Prices on raw material remain high and are increasing.

8 NATIONAL CHAPTERS

8.1 Austria

The Austrian fish processing sector, while not as extensive as in coastal countries, plays a significant role in catering to local demand and contributing to the country's food industry. Although Austria is a landlocked country, it has a well-established fish processing industry that focuses primarily on processing freshwater fish sourced from its rivers and lakes. This sector is essential for ensuring a stable supply of processed fish products within the country. The industry often emphasizes high-quality standards and utilizes modern processing techniques to maintain the freshness and nutritional value of the fish. Additionally, the sector is known for its adherence to strict hygiene and safety standards, ensuring the production of safe and premium-quality fish products for both domestic consumption and export purposes. Despite its geographical limitations, the Austrian fish processing sector continues to contribute to the country's economy and food industry, providing employment opportunities and meeting the local demand for fish products.

As being a land-locked country, the activity of the Austrian fish processing industry mainly includes locally products from aquaculture (trout and carp) and inland lake fisheries. Many other species have to be imported mainly from inside EU: Germany (smoked salmon and trout, crustaceans and other frozen fishes), Netherlands (tunas and salmons), Czech Republic (salmon), Italy (tuna, trout and cephalopods), and outside EU from Turkey (mainly smoked and frozen trout) (Eurostat 2021).

According to SBS data, in 2021, the fish processing industry in Austria consisted of 8 enterprises with an estimated total income of EUR 45.8 million employing 150 people corresponding to 124 full time equivalent. The number of employees has fluctuated over the years independently in relation to the increased number of enterprises. The unpaid labour in 2020 was estimated to be 7 persons representing 4.7% of the total persons employed.

Table 8.1.1 Overview, Austria, 2008-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	6	9	10	9	8	7	6	7	8	14%
Total persons employed	134	130		153	143	164	158	157	150	-4%
Unpaid labour	5	8		8	6	6	5	5	7	40%
FTE	111	105		124	117	137	134	134	124	-7%
Income, expenditure and investments (million €)										
Production value	36.3	38.1		44.1	44.0	44.1	44.0	44.6	43.7	-2%
Turnover										
Total income	39.4	41.8		46.7	46.7	45.8	44.9	45.7	45.8	0%
Total purchases of goods and services	30.1	32.8		35.7	36.9	34.8	35.7	35.2	35.8	2%
Personnel costs	5.0	4.8		5.7	5.4	6.7	6.5	7.1	7.0	-2%
Gross investment in tangible goods	0.3	0.6		1.1	0.3	1.0	1.4	0.4	0.4	0%
Economic performance (million €)										
Gross Value Added	9.3	9.3		11.5	9.4	11.0	10.1	10.9	9.8	-10%
Gross profit	4.3	4.6		5.8	4.0	4.3	3.6	3.8	2.9	-24%

Source: Eurostat, 2023.

Table 8.1.1 is giving an overview of the Austrian fish processing industry. The expenditures are mainly driven by the purchases of raw materials including non-processing goods and services that accounts for more than 80% of the total costs in 2020. These costs have slightly increased (2%) between 2020 and 2021, while in the period 2008 - 2020 constant growth, with a decrease in 2019, can be observed.

The amount of gross investment in tangible goods for 2021 is EUR 0.4 million; investments in tangible goods have significantly decreased in recent years.

From 2008 to 2020, the Austrian fish processing industry exhibited consistent growth in its Gross Value Added (GVA), with decrease in 2017 and 2021; even as the number of enterprises declined, particularly after 2015. In 2021, there was a 10% decrease in GVA compared to the previous year. In contrast, Gross Profit followed a relatively stable trend throughout the 2008-2020 period, with a 10% decrease from 2020 to 2021. Observed trends can be attributed to the continuous expansion of turnover, while the cost value remained relatively steady in recent years.

Table 8.1.2 Numbers of companies by company size, Austria, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
From 0 to 9 persons employed	2	5	6	4	4	4	3	4	5	25%
From 10 to 19 persons employed	1	1	1	2	1	0	0	0	0	0%
From 20 to 49 persons employed	2	2	3	2	2	1	1	1	2	100%
From 50 to 249 persons employed	1	1	0	1	1	2	2	2	1	-50%
250 persons employed or more	0	0	0	0	0	0	0	0	0	0%

Source: Eurostat, 2023

Data coverage and quality

No data were submitted by Austria. For that reason, the EWG prepared a national mini-chapter with limited analyses based on publicly available data (Eurostat).

8.2 Belgium

8.2.1 Overview

In 2020, the fish processing industry in Belgium consisted of about 65 enterprises with fish processing as their main activity, and of 143 seafood companies exerting fish processing not as main activity. The total turnover for the 64 main enterprises was estimated at around EUR 941 million, employing a total of 1 395 people (1 350 full-time equivalents, FTE). Activity of the Belgian fish processing industry includes the production of fresh and frozen fillets, smoked fish (salmon, halibut, haring, rainbow trout and others), pickled seafood and prepared dishes. For 2021, preliminary figures indicate that the number of fishing industries with main activity, compared to 2020, declined slightly to 64, but with a slight increase of turnover (EUR 951 million). The segment of companies with ≥ 250 employees increased in 2020 to 4, compared to 1 in the previous years (2016-20219). From the preliminary numbers, this segment decrease in 2021 to 1 company.

The enterprises have been classified by category according to the number of employees (≤ 10; 11-49; 50-249; ≥ 250 employees). Table 8.2.1 gives an overview of the Belgian fish processing industry, including the size of the enterprise and the level of employment. The numbers for 2021 are preliminary. The sector is dominated by small and middle-sized enterprises. In 2020, more than half of the Belgian enterprises had less than 10 full time employees. Furthermore, 25 enterprises had between 11 and 49 employees corresponding to almost 36% of the total enterprises. There were 4 enterprises with more than 50 employees and 4 large enterprise with more than 250 employees appearing in this category in 2020.

Table 8.2.1 Overview, Belgium, 2013-2021(numbers for 2021 are preliminary)

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021*	Δ (2019-20)
Structure (number)										
Total enterprises	60	66	66	62	65	66	65	65	64	0%
≤ 10 employees	37	38	37	35	36	37	35	35	34	0%
11-49 employees	19	24	26	23	24	24	25	25	23	0%
50-249 employees	4	4	3	3	4	4	4	4	6	0%
≥ 250 employees	0	0	0	1	1	1	1	4	1	300%
Employment (number)										
Total employees	1,489	1,487	1,529	1,469	1,369	1,424	1,426	1,395	1,328	-2%
FTE	1,385	1,377	1,423	1,373	1,269	1,335	1,378	1,350	1,315	-2%
Indicators										
Turnover (million €)	660	701	710	762	866	953	961	941	951	-2%
FTE per enterprise	23.1	20.9	21.6	22.2	19.5	20.2	21.2	20.8	20.5	-2%
Average wage (thousand €)	42.3	44.4	42.7	42.8	49.0	48.7	46.8	46.9	51.0	0%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity										
Number of entreprises	194	195	193	218	181	180	148	143	172	-3%
Turnover attributed to fish processing (million €)										

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

2021*: The data for 2021 are preliminary and not taken into account for the trend calculations.

Δ (2019-2020)*: The trends in the evolution is between 2020 and 2019, as the data for 2021 are preliminary.

The change in the number of enterprises doing fish processing not as a main activity with less than 10 employees may be explained by the uncertainties related to the population of enterprises and the impact of COVID-19. It is probable that new enterprises have started fish processing activities in the 2020-2021 time period, whilst others have stopped their fish processing activities during this same period. The change in number of enterprises may also be linked to changing practices, moving from processing to trading, retailing or specialising as an importer or exporter, the COVID-19

impact. Some enterprises may therefore no longer meet the definition of 'fish processor'. In 2020, the average wage stayed rather stable, while the preliminary numbers for 2021 show an increase. The value of unpaid labour is not reported.

The enterprises doing fish processing not as a main activity decreased from 148 to 143 enterprises in 2020 while the preliminary number for 2021 shows an increase of 20% compared to 2020 (172 companies non main activity), an increase of 20%. The annual questionnaire 2020-2021 was further modified as such that it was easier for enterprises to indicate they no longer did any fish processing.

The number of employees of the enterprises with fish processing as main activity decrease slightly compared to 2018-2019, but remained rather stable during the period 2020-2021 (Table 8.2.1).

8.2.2 Economic performance

Table 8.2.2 reports detailed income, costs and the overall economic performance for the Belgian fish processing industry for the period 2008 to 2021 (numbers for 2021 are preliminary).

Table 8.2.2 Economic performance indicators, Belgium, 2013-2021(numbers for 2021 are preliminary)

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021*	Δ (2019-20)
Income (million €)										
Turnover	659.8	701.1	709.9	761.6	865.7	952.7	961.0	940.8	951.4	-2%
Other income	4.2	14.7	12.3		8.0	9.1	8.6	8.6		0%
Operating subsidies	1.4	1.5	1.3	0.2	0.3	0.3	0.2	0.2		0%
Total Income	665.4	717.2	723.5	761.8	874.1	962.1	969.9	949.7		-2%
Expenditure (million €)										
Purchase of fish and other raw material for production	428.8	435.9	454.2	627.2	713.1	807.1	808.5	789.2	800.0	-2%
Wages and salaries of staff	58.5	61.1	60.7	58.8	62.2	65.0	64.5	63.3		-2%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0%
Energy costs	54.8	57.8	58.7	57.5	0.0	0.0	0.0	0.3		0%
Other operational costs	3.2	2.5	2.2	0.0	2.5	2.2	2.9	2.8		-2%
Total production costs	545.4	557.2	575.8	743.5	777.8	874.3	875.9	855.6		-2%
Capital Costs (million €)										
Depreciation of capital	13.2	11.0	12.4	10.8	11.8	12.3	12.0	11.7		-3%
Financial costs, net	2.8	1.4	2.2	2.1	-3.9	-1.0	1.7	1.7		-3%
Capital Value (million €)										
Total value of assets	319.5	330.1	334.9	340.0	372.0	415.6	407.8	402.4		-1%
Net Investments	9.7	8.3	9.7	8.0	13.8	5.4	8.6	8.3		-3%
Subsidies on investments				1.0	1.3	2.3	2.3	2.2		-5%
Debt	207.3	195.2	200.2	200.1	245.3	266.6	262.6	259.0		-1%
Economic performance (million €)										
Gross Value Added	177.1	219.6	207.1	76.9	158.2	152.5	158.3	157.1		-1%
Operating Cash Flow	120.0	160.0	147.7	18.3	96.3	87.8	94.0	94.1		0%
Earning before interest and tax	106.8	149.0	135.3	7.5	84.4	75.5	82.0	82.4		1%
Net Profit	104.0	147.5	133.1	5.4	88.3	76.5	80.3	80.8		1%
Productivity and performance Indicators										
Labour productivity (thousand €)	127.9	159.5	145.6	56.0	124.6	114.2	114.9	116.4		1%
Capital productivity (%)	55.4	66.5	61.8	22.6	42.5	36.7	38.8	39.1		
GVA margin (%)	26.7	30.7	28.7	10.1	18.1	15.9	16.3	16.6		
EBIT margin (%)	16.0	20.8	18.7	1.0	9.7	7.8	8.5	8.7		
Net profit margin (%)	15.6	20.6	18.4	0.7	10.1	8.0	8.3	8.5		
Return on Investment (%)	33.4	45.1	40.4	2.2	22.7	18.2	20.1	20.5		
Financial position (%)	35.1	40.9	40.2	41.1	34.1	35.9	35.6	35.6		

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

2021*: The data for 2021 are preliminary and not taken into account for the trend calculations.

Δ (2019-2020)*: The trends in the evolution is between 2020 and 2019, as the data for 2021 are preliminary.

For 2020, the total income of the Belgian fish processing industry was estimated at around EUR 940.8 million, a 2% decrease compared to 2019. The total income consists exclusively of turnover from processing fish.

In 2010, the operating subsidies remained stable compared to 2019.

The net financial costs have a positive value in 2020, comparable to 2019, which can be considered as a normal trend when previous years (2015 and earlier) are considered.

The net investments have decreased slightly in 2020, compared to the previous year and as such remain stable to the levels comparable to previous years (2013-2016) after a dip in 2018. The net investment level remained stable compared to 2019.

The earnings before interest and tax (EBIT) are quite stable during 2017 up to 2020.

8.2.3 Breakdown by company size

Table 8.2.3 gives an overview of the economic situation of the Belgian fish processing industry by size categories. As stated in section 8.2.1, despite most enterprises being small (less than 10 employees) and providing the most employment, they only account for a small portion of the total turnover.

Table 8.2.3 Economic performance by size, Belgium, 2013-2021 (2021 is preliminary)

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2019-20)
less than or equal to 10 employees										
Total Income	113.8	146.8	128.7	60.7	111.9	104.0	104.1	104.1		0%
Total production costs	31.5	24.0	19.4	59.7	104.8	97.7	99.4	99.4		0%
Gross Value Added	88.0	127.3	114.0	6.2	11.9	11.4	9.7	9.7		0%
Operating Cash Flow	82.3	122.7	109.3	1.0	7.2	6.3	4.7	4.7		-1%
Earning before interest and tax	80.5	120.7	107.5	-0.5	5.7	4.3	3.0	3.0		-1%
Net Profit	80.4	120.5	107.4	-0.8	5.2	3.9	2.6	2.6		-2%
between 11 and 49 employees										
Total Income	181.4	214.7	271.1	338.2	354.7	419.6	418.7	418.7		0%
Total production costs	160.8	187.0	243.2	323.4	322.3	398.0	388.3	388.3		0%
Gross Value Added	38.6	49.1	52.6	38.6	55.2	46.5	55.4	55.3		0%
Operating Cash Flow	20.6	27.7	27.8	14.8	32.3	21.7	30.4	30.4		0%
Earning before interest and tax	15.6	22.9	21.9	9.1	27.0	16.3	24.7	24.7		0%
Net Profit	14.6	21.6	20.6	7.8	26.7	17.2	24.3	24.3		0%
between 50 and 249 employees										
Total Income	370.2	355.7	323.8	180.8	205.3	206.6	209.9	209.9		0%
Total production costs	353.1	346.2	313.2	176.0	177.0	179.8	184.9	185.1		0%
Gross Value Added	50.4	43.2	40.6	15.5	43.7	42.9	40.0	39.8		0%
Operating Cash Flow	17.0	9.5	10.6	4.8	28.4	26.7	25.0	24.8		-1%
Earning before interest and tax	10.8	5.4	5.8	3.6	25.7	23.8	22.4	22.2		-1%
Net Profit	9.0	5.4	5.1	3.0	24.8	22.6	21.1	21.0		-1%
greater than or equal to 250 employees										
Total Income	0.0	0.0	0.0	182.2	202.1	231.9	237.2	237.2		0%
Total production costs				184.5	173.7	198.7	203.3	203.3		0%
Gross Value Added				16.6	47.3	51.8	53.2	53.2		0%
Operating Cash Flow				-2.3	28.4	33.2	33.9	33.9		0%
Earning before interest and tax				-4.7	26.0	31.0	31.8	31.8		0%
Net Profit				-4.6	31.6	32.9	32.2	32.2		0%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

2021*: The data for 2021 are preliminary and not taken into account for the trend calculations.

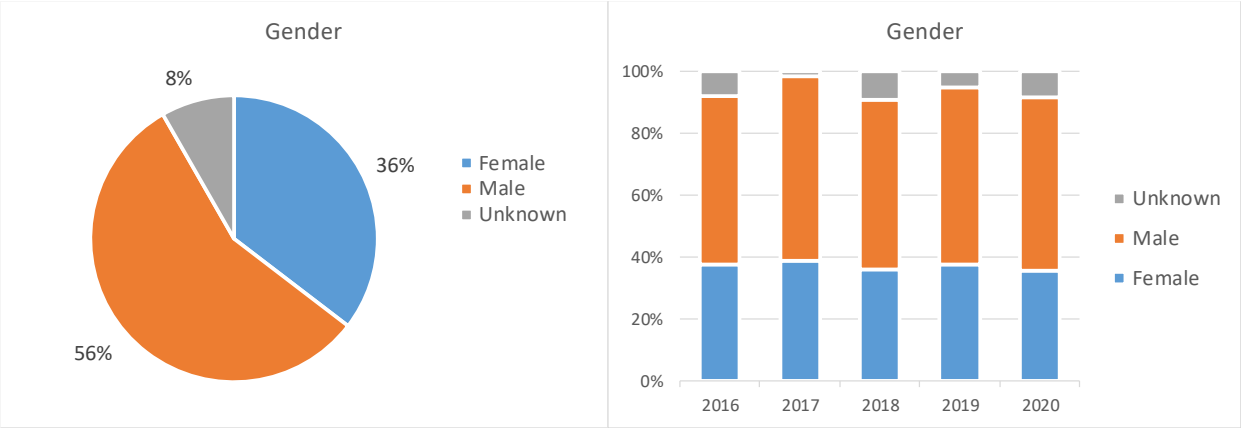
Δ (2019-2020)*: The trends in the evolution is between 2020 and 2019, as the data for 2021 are preliminary.

In Belgium, in 2020, the number of fish processing company with more than 250 employees increased to 4. All reported data comes from the publicly available annual accounts.

8.2.4 Socio-demographic structure

The gender distribution among the employees of the Belgian fish processing industry is fairly stable. All in all, there are more men (57%) than women (38%) employed in the fish processing industry in Belgium.

Figure 8.2.1 Socio-demographic characteristics, Belgium, 2020



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.2.5 Trends, drivers and outlook

With its 30 000 km², Belgium is a small country, but due to its unique position it has always managed to carve out a place for itself at European level. Thanks to a central location and good logistics infrastructure, more than 200 million consumers can be reached within a radius of 500 km.
The Belgian fishing industry has evolved significantly in recent decades and is still in a state of flux. Belgium has only a small fishing fleet that has almost halved in the last twenty years. However, the landing volume could be mostly maintained by means of larger, more efficient vessels. Today, economic and social sustainability must go hand in glove with environmental sustainability. Like the Belgian fishing industry, the Belgian fish processing industry also is part of the agrifood system and the blue economy, which includes all economic activities related to the oceans, seas and coasts. Even though the sector is relatively small, at a local level it is of considerable economic importance. Moreover, the sector creates indirect local economic turnover and employment availability.

The year 2020 is recorded in history as 'The Year of Corona'. Besides the impact on public health, the corona crisis also had huge repercussions for daily life activities and on the economy. In Belgium, the effect of the corona crisis on daily life activities can be observed in the total landings of fish by the professional Flemish Sea fishery. Indeed, total landings fell to 18 306 tonnes in 2020, which is 5% less than in 2019, when 19 309 tonnes were landed. Landings in Belgian ports fell to 12 796 tonnes compared to 13 754 tonnes in 2019, and in foreign ports to 5 510 tonnes compared to 5 555 tonnes in 2019. The temporary fishing activity stop arrangement (4 months) that was decided upon for the fishing industry as part of the COVID 19 crisis measures plays a part in this.

In 2020, apparent consumption was estimated at 22.97 kg per capita, a -1% decrease compared with 2019. The most consumed species were salmon, cod, mussel and skipjack tuna (source: EUMOFA). Regular consumers, namely those who eat fishery and aquaculture products at least once a month, mainly belong to the age groups 40-54 and over 55. Young people (15-24) are less inclined to consume fish in Belgium, as well as at EU-28 level. However, in this category, regular consumers cover 69% of the total, which is slightly higher than at EU level (67%, UK included).

Belgians consume especially fresh and frozen products; loose fish is more rarely consumed (54%) than at EU level (68%, UK included) (source: EUMOFA, "EU consumer habits regarding fishery and aquaculture products", 2017)

In the spring of 2020, the loss of food services (out-of-home consumption, including catering) and exports disrupted the markets for Belgian fisheries and aquaculture products. Spending towards retail-based food purchases increased by more than 12%. The expenditures for fish followed the same trend, but differences per category and species were noticeable. In Belgium, particularly the sales of deep-frozen molluscs and crustaceans, deep-frozen fish-based preparations and smoked fish increased.

Fish processing companies, specialised in the catering industry saw a large drop in turnover, whereas itinerant traders (market vendors and door-to-door salespeople) prospered. Some wholesalers who also do fish processing tried to reinvigorate their business by tapping into other sales markets (e.g. direct sales via web portals, prospecting for new target groups) and/or extensive restructuring of their company. From the start of the pandemic, there has been an exponential increase in the takeaway segment. Because of the increasing prices in the catering industry, which are amongst others due to the rising energy costs, a rapid reversal of this trend is not expected.

Despite the obstacles that the fish processing sector had to overcome in 2020 and 2021, the fish processing enterprises have kept moving forward during the current crisis. Planned investments in machinery and buildings have not been postponed. Importantly, the fish processing sector remained focused on innovation and sustainability. In 2021, the main products sold were "Fresh or chilled fish fillets and fish meat (including shark fins), whether or not minced" and "Prepared meals and dishes based on fish, crustaceans and molluscs" (source: Eurostat-PRODCOM)

8.2.6 Data coverage and quality

The identification of genuine fish processing companies in Belgium remains a continuous challenge. On a regular basis (i.e. with every Work Program cycle) the list of existing and potential new companies will be reviewed with scrutiny in order to eliminate companies which do not fit the definition of fish processing company and to eliminate double entries. Error checks will focus on the comparison of collected data via financial statements and balance accounts, and the data collected by questionnaires. This in order to fine-tune the questionnaires, to avoid double data collection and to improve data density and quality.

The sources for the collection of data consist of:

- The Federal Agency for the Safety of the Food Chain (FASFC)
- FPS Economy, S.M.E.s, Self-employed and Energy (Federal Government)
- Balance accounts, National Bank of Belgium
- Questionnaire

The identification of the population of enterprises involved in fish processing is derived from information obtained by the Federal Agency for the Safety of the Food Chain (FASFC). These enterprises are sent a questionnaire to identify if they are main or non-main processors, to identify their specific type(s) of fish processing activities and to gather social and economic data. Data from the national balance accounts is used to complement the survey information.

The enterprises have been classified by category according to the number of employees (≤ 10; 11-49; 50-249; ≥ 250 employees) and balance sheet type.

There are complete, shortened and micro balance sheet types, depending on the number of employees and turnover of the enterprises. Importantly, depending on the type of balance sheet more variables need to be estimated. When data is missing, the mean per category is calculated in the sample and imputed to estimate totals. For the calculation of 'Turnover' Belgium used an improved estimation method, i.e., the use of gross margin as a proxy for 'Turnover'. In the current STECF-EWG 23-14 report, for the year 2021, the numbers are preliminary. In order to achieve better quality data, and a higher coverage, Belgium has developed a FPI national database. The data from the different sources, are integrated in this database. Currently, bugs and errors are still in the system in the database of the Fish Processing Industry, resulting in too many errors when

extracting the data from the database. The data analysis tool used for the previous years, was still applicable for the 2020 data (checked and used in this report), unfortunately not for the 2021 data.

8.3 Bulgaria

8.3.1 Overview

The growth of the Bulgarian processing sector continues and in 2021, the number of registered enterprises grew up to 70. In 2021, the number of enterprises increased by 9% compared to 2020 and by 27% compared to 2019. All of the enterprises are processing fish as their main activity. Based on the number of employees the units from the Bulgarian fish processing sector are in the three categories – less than 10 employees, 11-49 employees and 50-249 employees. For the period 2008-2021, there were no enterprises with more than 250 employees.

The total number of employees in 2021 increased by 17% compared to 2020 and 16% compared to 2019. Compared to the period 2008-2020 the total number of employees in 2020 increased by 39%. In 2021, FTEs also increased by 11% compared to 2020 and 9% compared to 2019, probably because of the general increase of the processing sector in the country for the last two years. The average wage in 2021 reached EUR 6.2 thousand and compared to 2020 increased by 5%. The wages in the last three years are almost stable compared to the period 2008-2018 and after the small decrease in 2020 compared to 2019 the average wage in 2021 increased by 51% compared to the period 2008-2020.

In 2021, the turnover and total income respectively continued the growth from last two years and compared to the period 2008-2018, the increase is almost twice higher than to the comparison with the years before 2019. The structure of the costs remains the same for all years – the largest proportion is for the purchase of fish and other raw materials, followed by other operational costs and wages and salaries of staff.

Table 8.3.1 Overview, Bulgaria, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	46	44	45	45	46	49	55	64	70	9%
≤ 10 employees	12	10	11	11	14	18	17	25	31	24%
11-49 employees	22	22	24	24	20	20	25	29	25	-14%
50-249 employees	12	12	10	10	12	11	13	10	14	40%
≥ 250 employees	0	0	0	0	0	0	0	0	0	0%
Employment (number)										
Total employees	1,725	1,879	1,907	1,904	1,756	1,715	2,177	2,161	2,534	17%
FTE	1,653	1,744	1,671	1,618	1,490	1,427	1,814	1,773	1,975	11%
Indicators										
Turnover (million €)	64	69	85	78	85	83	122	116	133	15%
FTE per enterprise	35.9	39.6	37.1	36.0	32.4	29.1	33.0	27.7	28.2	2%
Average wage (thousand €)	3.1	3.1	4.2	4.5	5.8	5.3	6.2	5.9	6.2	5%
Unpaid work (%)	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	72%
Enterprises doing fish processing not as main activity										
Number of entreprises	0	0	0	0	0	0	0	0	0	0%
Turnover attributed to fish processing (million €)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.3.2 Economic performance

The total income of the Bulgarian fish processing industry was stable during the period 2016-2018. In general, for the whole period, 2008-2021 the situation is improving gradually except 2020 when a small decrease was observed. Before 2021 the highest peak of the total income was in 2019 – EUR 139.5 million and in 2021 reached EUR 135.3 million. The total income in 2021 increase by 14% compared to 2020 but decreased by 3% compared to 2019. Compared to the average for the

2008-2020 period increased by 70%. The main part of the Total income is the Turnover - approximately 98%. The Other income decreased in 2021 with the value of EUR 1.3 million. The value of "other income" decreased not only to the last year but also to 2019 when reached significant value – EUR 16.9. Regarding the subsidies, the situation is similar to the previous years and the value does not exceed EUR 0.5 million.

Table 8.3.2 Economic performance indicators, Bulgaria, 2008-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	64.4	68.7	85.3	78.1	85.0	82.9	122.3	115.8	133.4	15%
Other income	3.8	3.7	1.9	1.8	1.0	1.2	16.9	2.4	1.3	-47%
Operating subsidies	0.9	0.6	3.2	0.0	0.0	0.0	0.3	0.8	0.5	-31%
Total Income	69.1	73.0	90.4	79.9	86.1	84.1	139.5	119.0	135.3	14%
Expenditure (million €)										
Purchase of fish and other raw material for production	28.7	31.9	38.2	40.6	39.7	35.1	55.0	66.8	56.7	-15%
Wages and salaries of staff	5.1	5.5	7.1	7.3	8.7	7.6	11.3	10.5	12.2	17%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%
Energy costs	1.6	1.4	1.4	1.3	1.1	1.3	2.0	1.9	2.7	47%
Other operational costs	4.7	3.0	6.5	7.4	8.4	5.6	11.1	10.5	14.0	33%
Total production costs	40.2	41.9	53.2	56.6	57.9	49.7	79.4	89.6	85.7	-4%
Capital Costs (million €)										
Depreciation of capital	5.4	5.0	6.0	5.6	8.4	8.3	6.0	5.2	6.4	23%
Financial costs, net	0.9	1.0	0.8	0.8	-1.4	-2.6	-13.1	-13.9	-17.7	27%
Capital Value (million €)										0%
Total value of assets	28.5	31.4	38.0	34.5	29.3	35.0	47.7	59.9	54.3	-9%
Net Investments	14.4	18.2	9.4	2.8	1.5	4.4	2.2	5.2	3.8	-27%
Subsidies on investments				0.9	0.4	0.9	0.6	1.1	0.8	-33%
Debt	5.6	5.6	9.8	12.2	9.0	20.0	23.0	29.3	27.1	-7%
Economic performance (million €)										
Gross Value Added	33.2	36.1	41.1	30.6	36.9	42.0	71.1	39.1	61.3	57%
Operating Cash Flow	28.9	31.2	37.2	23.3	28.2	34.4	60.1	29.4	49.6	69%
Earning before interest and tax	23.5	26.1	31.2	17.7	19.8	26.1	54.1	24.1	43.2	79%
Net Profit	22.6	25.2	30.4	16.8	21.2	28.8	67.2	38.1	60.9	60%
Productivity and performance Indicators										
Labour productivity (thousand €)	20.1	20.7	24.6	18.9	24.7	29.4	39.2	22.0	31.0	41%
Capital productivity (%)	116.5	114.9	108.2	88.8	125.7	119.9	149.0	65.3	112.8	
GVA margin (%)	48.7	49.8	47.1	38.3	42.8	49.9	51.1	33.0	45.5	
EBIT margin (%)	34.0	35.8	34.5	22.1	23.0	31.1	38.8	20.3	31.9	
Net profit margin (%)	32.7	34.4	33.6	21.1	24.6	34.2	48.2	32.0	45.0	
Return on Investment (%)	82.4	83.3	82.0	51.2	67.5	74.6	113.4	40.3	79.5	
Financial position (%)	80.5	82.0	74.3	64.7	69.4	42.9	51.8	51.1	50.1	

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The total production costs were growing proportionally to the income. With a small decrease of 4% compared to 2020, the total costs in 2021 were EUR 85.7 million, which is 8% more than the value in 2019. In 2021, total production costs increased by 70% compared to the average for the 2008-2020 period. The largest contributor to the costs is the purchase of fish and other raw material for production – it is around 70% for last five years. The wages and salaries of staff represent approximately 14% of the costs in 2021 and 12% in 2020, while the other operational costs are between 11% and 16% during the last three years. From all the costs which form the total production costs, the energy costs are the most stable ones during the years and after a slightly decreased until 2017 in 2019 the value increased as well as in 2021. Compared to 2020 the energy costs increase by 47% in 2021 and by 80% compared to the average for the 2008-2020 period. The value of unpaid labour is really negligible for the whole period. The largest value of this indicator

was EUR 21 thousand for the whole sector in 2008. It is gradually decreasing and in 2018 and 2019 is EUR 0 while in 2021 is EUR 3 thousand.

The depreciation of the capital only formed the capital costs in the last five years. In 2021, it increased by 23% from 2020 and by 7% from 2019. The comparison of 2021 to the average for the period 2008-2020 shows a decrease by 3%.

In 2021, the total value of assets decreased by 9% compared to 2020 and reach EUR 54.3 million. Compared to the period 2008-2020 in 2021 increase by 68%.

The economic performance is also growing. The Gross Value Added is increasing each year except in 2020 and in 2021 increased by 72% compared to the period 2008-2020. Similar is the situation with the operating cash flow and net profit. In 2021, the net profit increased by 60% compared to 2020 and by 146% compared to the average for 2008-2020 period.

The labour productivity is growing by 41% and the capital productivity also increased in 2021 compared to 2020. The GVA margin and the EBIT margin growing in last year, which indicates profitability from the enterprises and a continuation of the positive trend. The net profit margin and RoI were also increased during the last year.

8.3.3 Breakdown by company size

The structure of Bulgarian processing sector is consistent during the period 2008-2021. The number of enterprises varied between 43 and 70. There are no enterprises with more than 250 employees. From the other three categories, the largest (44%) is the size category with less than 10 employees. The fish processing units with 11-49 employees and between 50-249 represent 36% and 20%, respectively. The main differences in the economic variables during the years are due to the movement of enterprises from one category to another category based on the reduction or hiring of employees. This is one of the reasons for the increase in the number of enterprises with less than 10 employees, compensated with the decreased number of units in the category with 11-49 employees.

Table 8.3.3 Economic performance by company size, Bulgaria, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	5.4	5.8	16.6	17.0	3.8	19.6	16.5	16.8	12.4	-26%
Total production costs	2.0	2.7	11.1	12.2	8.2	10.6	11.3	11.0	3.7	-66%
Gross Value Added	3.2	3.0	5.9	5.2	-4.2	9.2	5.7	6.3	9.2	46%
Operating Cash Flow	3.4	3.1	5.5	4.8	-4.4	8.9	5.2	5.8	8.7	50%
Earning before interest and tax	2.9	2.5	4.9	4.7	-4.5	8.9	4.8	4.7	6.5	37%
Net Profit	2.6	2.1	4.8	4.6	-4.2	8.9	4.4	4.8	6.4	33%
between 11 and 49 employees										
Total Income	19.1	23.5	38.0	31.0	35.7	28.7	62.4	67.1	56.1	-16%
Total production costs	16.4	18.6	22.7	26.4	25.4	17.5	39.5	48.2	35.3	-27%
Gross Value Added	3.9	6.5	17.3	7.0	12.7	13.9	27.8	23.6	24.8	5%
Operating Cash Flow	2.7	4.9	15.2	4.5	10.3	11.2	22.9	18.9	20.8	10%
Earning before interest and tax	1.8	1.9	11.7	1.3	5.5	6.6	19.3	16.6	19.0	14%
Net Profit	1.6	1.9	11.0	1.4	5.6	7.8	30.7	28.4	18.7	-34%
between 50 and 249 employees										
Total Income	44.6	43.7	35.8	31.9	46.6	35.9	60.5	35.1	66.8	90%
Total production costs	21.8	20.5	19.4	18.0	24.3	21.6	28.5	30.4	46.7	53%
Gross Value Added	26.1	26.6	17.9	18.4	28.4	18.9	37.6	9.1	27.3	199%
Operating Cash Flow	22.9	23.2	16.5	13.9	22.4	14.2	32.0	4.6	20.1	333%
Earning before interest and tax	18.8	21.8	14.6	11.7	18.7	10.7	30.0	2.7	17.8	546%
Net Profit	18.3	21.2	14.5	10.8	19.8	12.2	32.1	4.8	35.8	650%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

In all size categories, the distribution of the turnover, other income and subsidies in the total income is similar to their distribution for the whole processing sector. The largest part of the income in last three years was delivered by the turnover, more than 90%.

Regarding the distribution of the total costs – the main costs were for the purchase of fish and other raw material for production and for the size category with 50-249 employees the costs for wages and salaries of staff are 63%.

In last three years, the economic performance of size category with 50-249 employees can be described as fluctuating while in the size category with less than 10 employees a gradual improvement is shown for the same period. The situation for category with 11-49 employees is different and in last three years, the economic performance is gradually deteriorating. In 2021, the situation for the size category with less than 10 employees is similar but when total income reach EUR 12.4 million, 26% less compared to 2020 the gross value added and net profit for this size category increased in 2021 compared to 2020 by 46% and 33%, respectively.

Even though the economic performance of size category with 50-249 employees fluctuated during the last years, there is significant improvement in the period analysed to the increase of the total income and net profit, which explain overall profitability.

In 2021, the enterprises with 50-249 employees reached the highest peak in terms of profitability with a total income of EUR 66.8 million. The segment was prosperous in the period 2008-2014, but there was a significant decrease in 2015 and 2016. The total income raised well to EUR 60.5 million in 2019 but dropped down again in 2020 to EUR 35.1 million. Compared to the average for the period 2008-2020 the total income increased by 65% in 2021. The same happened with GVA and net profit. Only the total production costs remain similar for the whole period.

8.3.4 Socio-demographic structure

The collection of social indicators for the Bulgarian processing sector started in 2017. The provided data during the 2023 data call was for 2021. The variables are included in the annual economic survey, which gave the opportunity of collecting Census data. All of the mandatory variables – gender, age, nationality, education and employment status were collected at enterprise level, so they were available also by size categories.

The majority of the employees involved in the processing sector in Bulgaria in 2021 were female (60%) followed by 40% male and 0% unknown. The proportion of female for most size categories of enterprises is similar (55-64%) except in the size category with less than 10 employees where the male dominate whit 61%.

The age groups used during the data collection were 15-24, 25-39, 40-54, 55-64 and >= 65.

68% of the of the total employed (1 732) were in the age groups 25-39 and 40-54 with equal share of 34% and only 4 employees differences, followed by 15% representing people between 55-64 years, 13% for the age group 15-24 and 4% employees were >=65 years. The percentage distribution by age is similar to the total distribution in the "all size" categories.

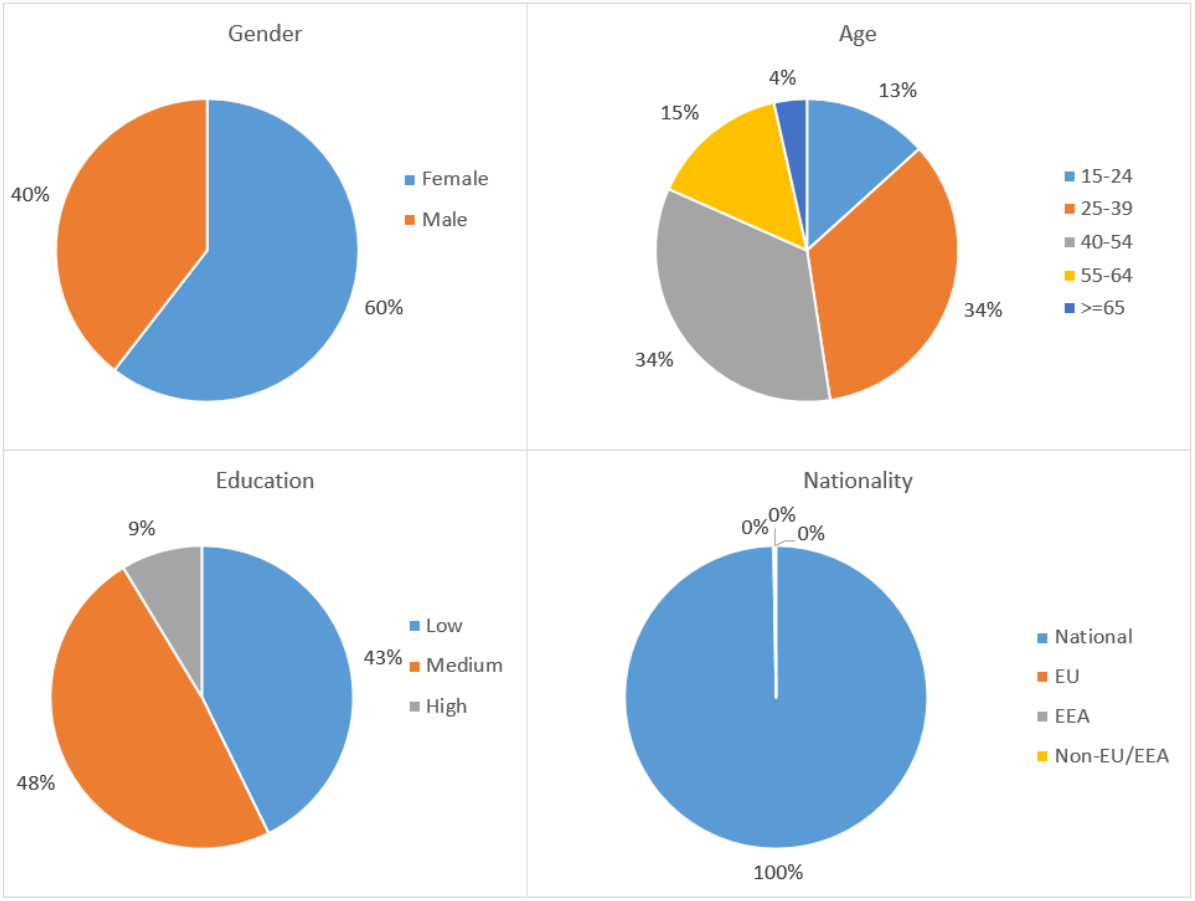
In terms of education the most common answer was high school/specialized high school corresponding to medium education level (48% - 1 231 people), followed by primary school which is Low education level (43% - 1 083 people) and university degree equally to High (9% - 220 people).

The percentage of the people with low education is highest (53%) in the bigger enterprises (50-249 employees), while the percentage of the people with university degree is highest (19%) in the small enterprises with less than 10 employees.

The results showed that only 3 people working in processing industry are not from the EU, 16 people are from EU and all the others were Bulgarian citizens. The missing interest from employees from other countries could be due to the low monthly salary. The biggest enterprises employed the 13 employees from EU and the other 3 employees for EU and 3 non-EU are employed by enterprises employed between 11-49 people.

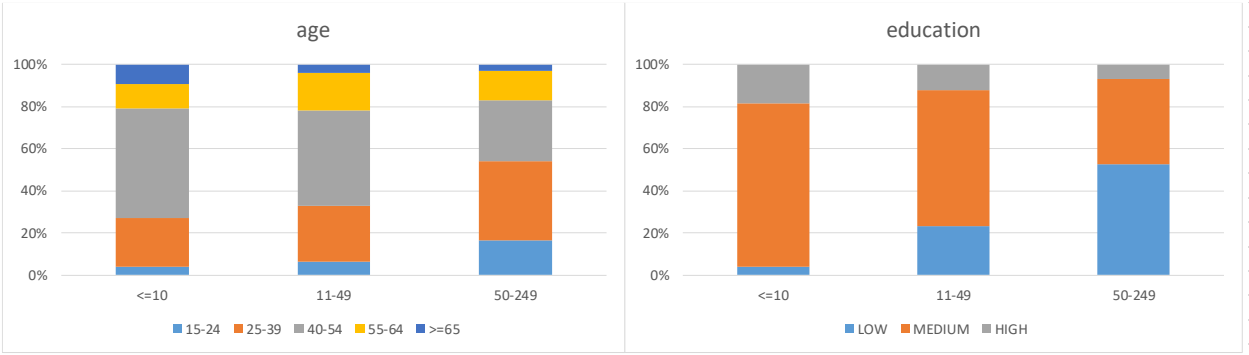
In general, the situation in the fish processing sector in terms of social data does not show changes in 2021 when comparing the data to 2019 and 2020. The only visible change in 2021 is the appearance of employees out of EU.

Figure 8.3.1 Socio-demographic characteristics, Bulgaria, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Figure 8.3.2 Distribution of the employees by enterprise size and education, Bulgaria, 2021.



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.3.5 Raw materials

In regard to the raw materials, the processing enterprises can be separated into 7 general types: units which are using as raw material fish caught from the Black sea (sprat and other small pelagic fish); units processing crustacean; units processing molluscs; units processing fish from aquaculture farms in Bulgaria (mainly rainbow trout, carp, catfish); processing enterprises for black caviar and enterprises for fisheries delicacies, enterprises producing canned fish.

The National Statistical Institute collects detailed data regarding the import and export of fishery products in the country, which is publicly available in the Annual agricultural report. Based on the data provided in the document, in 2021, totally 40 643 tonnes of fish and fish products have been imported, 8% more than the previous year.

The imported fish products in 2021 were mainly frozen fish where the group frozen fish without fillets increased by 10.7% compared to 2020. A serious increase on an annual basis was observed in the import of canned crustaceans and molluscs - by nearly 24%, fillets of fish and molluscs - by about 21% each. Approximately 66% of all imported fish and fish products in 2021 were from EU Member States.

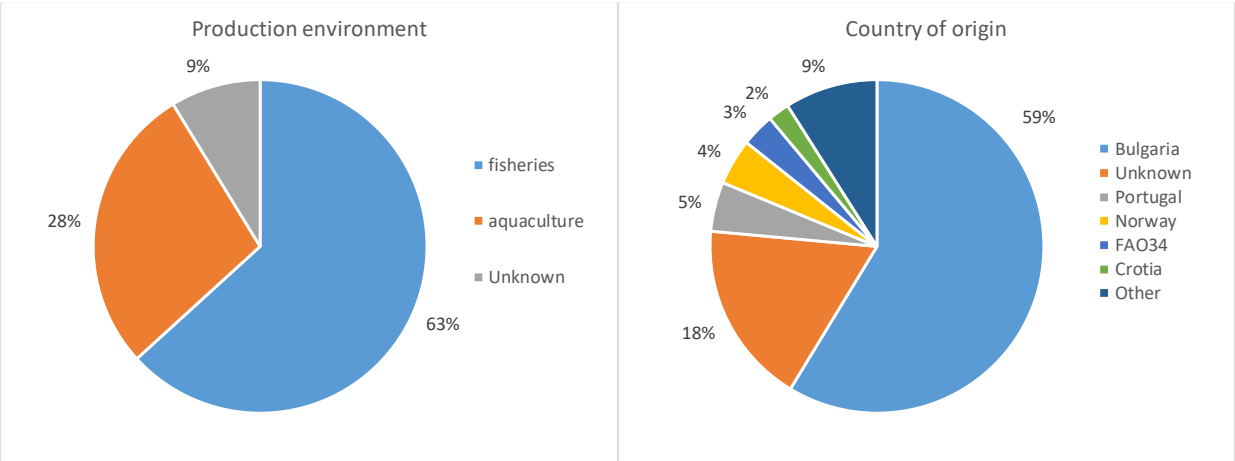
The total exports of fish, other aquatic organisms and fish products in 2021 amounted to 16 435 tonnes – 8.5% above the level of the previous year. The increase is mainly due to the expanded sale of frozen and dried & salted fish.

2021 was the second year for which Bulgaria reported the detailed data on raw materials. The information was collected during the same survey for collection of economic variables, which is covering all enterprises. The received information was extremely heterogeneous, although there is a table in the questionnaire with the fields to be filled in, in some cases the provided table by the processors was more than 3 pages and the level of details was much more disaggregated than expected. It terms of the quantities and species there were no problems, but the origin sometimes was reported differently than expected, probably the processors were not sure if the imported fish is from aquaculture or from fisheries.

In total 56 species were reported, 2 categories with unknown fish. The 2 categories of unknown fish are forming 8% of the total reported raw material. The top 6 species are forming 70% of the raw materials. The highest reported value is for the RPW (16% of the raw material), followed by SPR MAC (14%), TRR (13%) and MAC (12%). While the majority of processed RPW and SPR are from Bulgarian fisheries, the TRR is from Bulgarian aquaculture and MAC is only from import.

In regard to the origin, 60 categories were reported. 18% of the raw materials were with no info for the origin. 59% of the processed fish was from Bulgarian fisheries and aquaculture, followed by 9% reported only as other, without information from which country they are. Regarding the production environment, the Bulgarian fish processing industry use 63% raw materials from fisheries and 28% from aquaculture.

Figure 8.3.3 Origin of raw materials regarding the production environment and the country of origin, Bulgaria, 2021.



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.3.6 Trends, drivers and outlook

As a general comment on the trends in Bulgarian fish processing industry could be the aspect of passing the stabilization period and increasing of the production limits (as volume and value) in the last three year. The number of enterprises also increased in last year and also to the 2008-2020 period.

Definitely, the support provided by the Operational program for 2014-2020 period under EMFF play a significant role for the positive influence for the sector. This is more than visible from the increase of the number of enterprises and generated turnover by the fish processing industry in Bulgaria.

Priority Axis "Fostering marketing and processing" under the new Operational program and EMFF provide opportunity for new investments in the sector. The total value of planned investments in 2021 is EUR 7.17 million.

In order to be supported the sector the Managing authority of Operational program for 2014-2020 period under EMFF initiated a measure "Support for processors of fishery and aquaculture products to overcome the economic consequences of the COVID-19 pandemic". In 2021, under this measure, 21 enterprises of the Bulgarian fish processing sector received compensations that amounted to a total of EUR 6.47 million.

The number of enterprises during 2021 increased compared to 2020 and 2019. If there is any change, it is expected to be in favour of sustainability or increasing their number due to the opportunities provided by the EMFF and the new EMFAF. Regarding the size categories, it is not expected that there will be enterprises with more than 250 employees because even in the sector between 50 and 249 employees the average FTEs per firm in last three years is 89.

The imported fish and fish products in 2022 were increased by 8.8% compared to 2021 and amounted 44 208 tonnes. In 2022, the total exports of fish, other aquatic organisms and fishery products decreased by 9.2% compared to 2021. In the first half of 2023, the total exports of fish, aquatic organisms and processed fishery products decreased by 16.8% compared to the same period in 2022. The decrease in both imported and exported seafood in 2023 is definitely a sign of a decline in the turnover, which cannot be compensated for the domestic production from fisheries and aquaculture.

The interest in catching and processing rapa whelk and baby clam is bigger and continuing. While rapa whelk consumption is relatively popular in Bulgaria, the consumption of baby clam is really negligible and both species are of interest mainly because of the possibility of exporting. The increase in the total income together with the GVA and EBID margins indicates a positive trend for the future improvement of the situation in the whole sector. The consumption of fish and seafood per capita is still very low compared to the average fish consumption in the other member states. The processors are seeking to expand the variability of mid and high-value products on the local market and also for export.

8.3.7 Data coverage and quality

The data is collected under the annual socio-economic survey by questionnaires, and Bulgarian data collection scheme is Census. All of the mandatory variables and all the required data was collected and provided by Bulgaria. In terms of data coverage and quality, no issues were found.

8.4 Croatia

8.4.1 Overview

The Croatian fish processing industry was traditionally located along the coastline and on the islands close to important fishing areas to ensure a stable source of fresh raw material and expedite the process of production. In addition, processing plants offered job opportunities and a stable source of income to the local communities, which gradually developed a strong interdependence between socio-demographic dynamics and processing industry. Since the turn of the century, the number of major processing plants on islands has declined due to changed market conditions, expenses and lack of the labour force. On the other hand, in recent years, along with an extensive process of infrastructure improvement (construction of highway A1 and related roads), a sound process of moving fish processing plants to business zones in hinterlands of major fishing harbours has occurred. Also, access to pre-accession instruments, EU market opening after 2013 and later to EU funds (EMFF, ERDF, EMFAF) brought a new momentum to the fish processing and provided the opportunity for the revival, foreign investments, technological improvement, and innovations that ensured a steady growth of the fish processing industry in Croatia in a recent period.

The share of small pelagic fish in total catch of marine fish and other marine organisms in Croatia is the largest (more than 80%) with the main destination being the fish processing industry. Although many companies tend to diversify production, Croatian fish processing industry is mostly dependent on domestic catches of mainly small pelagic fish (70% of processed products are sardines and anchovies), and some of the processing companies are using their own fishing vessels. However, effort-based management of small pelagic fish with temporary cessations of fishing affects the stable supply of raw material, which resulted in developing new strategies in business planning, diversification of production and ensuring stable raw material inflow from the global market for fish and fish products. Moreover, COVID crises and later the impact of war in Ukraine forced the processing sector to adapt and overcome challenges related to market changes and energy prices.

Croatia is one of EU Member States that exports fish more than it imports. According to Central Bureau of Statistics, the export of fish and processed fish products steadily grows from 2013, both in volume and value, reaching 66 thousand tonnes and EUR 274 million in 2021, which is 12% of increase in volume and 19% of increase in value compared to 2020. In 2020, despite the COVID-19 circumstances, export continued to grow both in terms of volume (by 9%) and value (by 10%).

Import of fish and fish products dropped in period 2019-2020 by 2% in volume and 21% in value. Decrease in value is mostly related to drop of imported value in categories of crustaceans and molluscs, mostly intended for HoReCa sector, which was affected by COVID-19 closures. On the other hand, categories of live, frozen and category of dried, salted or marinated fish, mostly intended for retail, demonstrated the increase in volume and value, and exceeded the export in 2020, both in terms of volume and value. However, in 2021 the value and volume of import demonstrated increase in all categories and exceeded the 2019 values, with 59 thousand tonnes and EUR 196 million.

The change in the structure of imported fish is also visible in the average price. Since there is large share of herring and frozen sardine imported for tuna farming which price is not high (even larger in 2020), the price of the imported fish products dropped in 2020 from EUR 3.29 to EUR 2.66 and increased to EUR 3.31 in 2021.

Almost 80% of fish and fish products imported in 2021 came from Spain, Netherlands, Morocco, Italy, Sweden, Portugal and Slovenia and over 80% of the total export was exported to Italy, Spain, Albania, Japan, Slovenia, Bosnia and Herzegovina and Greece. Other important trading partners, falling under 90% of total trade volume are France, Serbia, Germany, Portugal, Poland, China and Hungary.

While traditional fish processing factories mostly carried out one activity and produced few types of products in the past, today most companies, to be more competitive and less dependent on the inflow of domestic raw material, also integrate aquaculture, fishing, trade, distribution and other food processing besides fish processing and develop diverse high value-added products. Therefore,

it is difficult to distinguish these companies from companies with the predominant activity of the fish processing industry.

In 2021, Croatian processing industry consisted of 33 companies with processing as a main activity, with the majority of companies and employees in a growing segment of 50-249 employees, which also accumulates the largest part of activities. The total number of employees decreased from 2 250 employees in 2020 to 2229 employees in 2021, which corresponds to a 1% decrease in total number of employees and 10% of a rise in FTE (1 712 in 2020 and 1 885 in 2021). Even during the early stage of pandemic, during 2020, which encountered closures and reduction of activities, the total FTE did not reduce, but on the opposite, it demonstrated a trend of steady growth. However, due to high dependency of the domestic raw material and seasonal character of small pelagic fisheries, there is still considerable share of temporary contracts in the sector.

The total number of enterprises steadily increases from 2013 to 2021 but what is more relevant is the structure of enterprises.

The average size of enterprises measured by the number of full-time employees in 2021 was 57.1 employees, together with 50.4 in 2020, which is an improvement compared to 2019 (47.5). The average salary per FTE decreased from EUR 17.5 thousand per year to EUR 16.3 thousand per year over the same period, or 7% respectively. Compared to 2013, the average salary increased by EUR 8 thousand. Considering the recent COVID crisis, which only deepened the problem of the lack of a qualified labour force, and sharp increase of economic indicators, further growth in salaries could be expected, but also some changes in the national structure of the employees due to the import of the labour force. The labour productivity in terms of gross value added per FTE after reaching a peak in 2015 with EUR 34.4 thousand decreased to EUR 29.7 thousand in 2019 and then returned to EUR 34.3 thousand in 2020. In 2021, it decreased to EUR 32.8 thousand or 4% respectively. Compared to 2013, the labour productivity increased in 2021 from EUR 13.6 thousand to EUR 32.8 thousand.

The reported value of unpaid labour in the Croatian fish processing industry is insignificant. In the years from 2013 to 2021, the value has been estimated to 0-0.1% of total amount of wages and salaries paid, since none of the enterprises confirmed that some of the employees are working on a volunteer basis. However, due to the family character of small enterprises, some share of unpaid labour could be considered as unreported.

Table 8.4.1 Overview, Croatia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	37	38	35	31	34	32	34	34	33	-3%
≤ 10 employees	20	20	18	11	12	9	10	11	9	-18%
11-49 employees	4	6	3	5	6	5	7	8	8	0%
50-249 employees	10	11	13	15	16	18	17	14	14	0%
≥ 250 employees	3	1	1	0	0	0	0	1	2	100%
Employment (number)										
Total employees	1,953	1,815	1,800	2,031	2,186	2,219	2,239	2,250	2,229	-1%
FTE	1,572	1,819	1,466	1,618	1,838	1,494	1,615	1,712	1,885	10%
Indicators										
Turnover (million €)	58	72	76	82	92	95	116	133	139	5%
FTE per enterprise	42.5	47.9	41.9	52.2	54.1	46.7	47.5	50.4	57.1	13%
Average wage (thousand €)	8.2	9.0	10.7	11.0	10.5	14.4	15.2	17.5	16.3	-7%
Unpaid work (%)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity										
Number of entreprises	21	21	24	0	0	0	0	25	28	12%
Turnover attributed to fish processing (million €)	11.5	18.6	20.3	0.0	0.0	0.0	0.0	24.9	23.9	-4%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.4.2 Economic performance

The total income consists of turnover (59% in 2020, 57% in 2019), other income (40% in 2020, 42% in 2021) and operating subsidies (1% in 2020, 1.5% in 2021). Compared to 2019, a share of other income increased by 12%. This is due to moving some large companies with vertically integrated activities of aquaculture and processing to the population of companies with processing as the main activity since their production increased in the reference period and became significant on the national level.

While subsidies did not play the main role in total income (1% in 2020, 1.5% in 2021), they were important as one of the factors of the economic growth and incentive for diversification of activities and adding value to the final product, especially for the enterprises from 50 to 249 employees out of which some companies gradually grew into the category >=250 employees. Subsidies combined with foreign investments - important for trading and market know-how and for developing market network - along with opening of business zones with favourable conditions for buying land properties, resulted in major changes in the fish processing sector in recent years, supporting large investments and production diversification. Turnover in 2021 was more than EUR 139 million, which is EUR 8.3 million more than in 2020, which corresponds to a 5% rise.

The total income has steadily been increasing from 2013 (EUR 83.8 million) to 2021 (EUR 245.1 million). Compared to 2013, total income rose for EUR 161 million.

Total production costs increased gradually along with the income over the reporting period, with 9% of increase in 2021 compared to 2020, or EUR 17.3 mil respectively. Compared to 2013, total production costs increased by EUR 139 million.

The most important cost component in the recent reporting period, Other costs, which make up for 42% of total cost in 2021, have increased by 12% (EUR 9.7 million) compared to 2020 and by 49% compared to 2019. Also, the share of Other costs demonstrated a trend of a gradual growth (lowest 19% in 2015) which tend be a reflection of diversification of activities and the other way around, some companies integrated processing with previously obtained fishing and aquaculture activities and gradually moved to the population of companies with processing as the main activity.

Purchase of fish and other raw material for production takes about 39% of total costs in 2021 and 40% of total costs in 2020, although the share of expenditures for the purchase of fish and raw material between since 2015 slightly declined. During this period, some larger companies invested in their own fishing vessels, which resulted in a decline of the cost of raw material.

Wages and salaries remained stable in cost structure, around 18% of total costs in 2013 and 15% of total costs in 2021, due to the process of movement and enlargement as well as opening of new processing facilities. Compared to 2020, the costs of wages and salaries increased by EUR 0.8 million or 3%, respectively.

Energy cost makes up for 4.1% of the total production cost in 2021, and 3.7% in 2020, which is an increase of 23%. The energy crises affected the sector already in 2021, due to large energy consumption for certain processing categories (freezing), but it is considered that the full effect of energy crises on companies' business structure will be visible in 2022 and 2023.

Gross Value Added (GVA) in 2021 increased by 5% compared to 2020 and continued evolution of a steady growth through the entire reporting period. The amount of Gross Value Added (GVA) in 2011 was 26% of total income, and after reaching the peak in 2015, it declined to 25% in 2021. While the period of 2018 and 2019 was remarked by trend of decreasing net investments (77% of decrease from 2018 to 2019), along with the slight decrease of debt from EUR 101.2 million in 2018 to EUR 100.7 million, despite the COVID-19 crisis, the investments increased from EUR 2.7 million in 2019 to EUR 12.8 million in 2020 and to EUR 13.2 million in 2021. These investments were supported by subsidies on investments, which were EUR 3.2 mil in 2020 and EUR 2.1 million in 2021.

Other economic indicators also demonstrate continuation of a positive trend. Earnings before interests and tax (EBIT) increased in 2021 compared to 2020 by EUR 2.9 mil or 17% respectively because of increasing income of over EUR 21 million. Net profit increased in 2021 compared to 2020 by EUR 2.5 million, or 15% respectively. The amount of operating cash flow generated by the processing sector in 2021 was EUR 34.8 million, which is 12% increase from 2020.

Return of investment increased in 2021 to 8%, after decreasing from 8.2% to in 2019 to 6.9% in 2020. At the same time, total value of assets increased from EUR 253.4 million in 2020 to EUR 254.4 million in 2021. Total value of assets increased by EUR 68.9 million in 2020 compared to 2019 due to including some large companies in the population, which also perform fishing and aquaculture.

Table 8.4.2 Economic performance indicators, Croatia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	58.1	71.7	75.9	82.4	91.5	95.2	116.5	132.7	139.0	5%
Other income	21.5	29.5	35.2	35.4	42.9	44.7	45.5	89.3	102.5	15%
Operating subsidies	4.2	2.0	3.8	2.6	1.3	0.7	1.1	2.2	3.6	69%
Total Income	83.8	103.2	114.9	120.4	135.7	140.5	163.1	224.1	245.2	9%
Expenditure (million €)										
Purchase of fish and other raw material for production	28.6	43.7	42.4	48.0	52.9	42.2	48.6	76.6	81.7	7%
Wages and salaries of staff	12.8	16.4	15.7	17.9	19.3	21.5	24.5	29.9	30.7	3%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	3.9	3.7	3.9	4.1	4.9	5.1	5.4	7.1	8.7	23%
Other operational costs	25.6	28.2	14.4	28.4	37.8	54.4	60.0	79.6	89.2	12%
Total production costs	71.0	92.1	76.4	98.4	114.9	123.3	138.4	193.1	210.4	9%
Capital Costs (million €)										
Depreciation of capital	4.3	5.3	4.8	6.8	8.8	8.3	9.4	13.6	14.5	6%
Financial costs, net	3.4	3.0	0.7	0.4	0.5	1.2	1.5	0.8	1.2	48%
Capital Value (million €)										
Total value of assets	138.9	148.4	129.4	127.2	164.8	183.0	184.5	253.4	254.4	0%
Net Investments	24.9	5.8	2.1	10.9	16.0	11.7	2.7	12.8	13.2	3%
Subsidies on investments				0.5	1.9	1.2	0.9	3.2	2.1	-35%
Debt	114.1	111.6	74.9	66.8	80.1	101.2	100.7	130.9	136.7	4%
Economic performance (million €)										
Gross Value Added	21.5	25.6	50.4	37.3	38.8	38.1	48.0	58.8	61.9	5%
Operating Cash Flow	12.9	11.1	38.5	22.1	20.8	17.3	24.6	31.0	34.8	12%
Earning before interest and tax	8.6	5.8	33.7	15.2	12.0	9.0	15.2	17.4	20.3	17%
Net Profit	5.2	2.8	33.0	14.9	11.5	7.8	13.6	16.6	19.1	15%
Productivity and performance Indicators										
Labour productivity (thousand €)	13.6	14.1	34.4	23.0	21.1	25.5	29.7	34.3	32.8	-4%
Capital productivity (%)	15.4	17.2	39.0	29.3	23.5	20.8	26.0	23.2	24.3	
GVA margin (%)	27.0	25.2	45.4	31.7	28.8	27.2	29.7	26.5	25.6	
EBIT margin (%)	10.2	5.6	29.3	12.7	8.8	6.4	9.3	7.8	8.3	
Net profit margin (%)	6.2	2.7	28.7	12.3	8.5	5.5	8.4	7.4	7.8	
Return on Investment (%)	6.2	3.9	26.0	12.0	7.3	4.9	8.2	6.9	8.0	
Financial position (%)	17.9	24.8	42.1	47.5	51.4	44.7	45.4	48.4	46.3	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

After three years of economic decline (2015, 2016, 2017), last three years (2019, 2020, 2021) net profit of Croatian fish processing industry gradually increased from EUR 13.6 million to EUR 19.1 million.

The period between 2013 and 2015 was remarked with declining economic performance indicators along with declining costs and productivity and performance indicators. After 2015, new investments induced moderate recovery, with major results accomplished in 2019.

Fish consumption in Croatia, according to research from 2020, accounts for 20 kg per capita in 2019. Compared to 2018, when the consumption was 18 kg, the research indicated that demand for local products is increasing. According to the research, in 2019 the most consumed were fresh or chilled fish (30.1%), fish fillets (20.3%), cephalopods (17.9%), prepared or preserved fish (14.3%), while products consumed on a smaller scale include dried, salted and smoked fish (6.3%), crabs (4.1%), molluscs (3.9%), prepared or preserved crabs, molluscs and other active invertebrates (2.6%) and frozen fish (0.3%).

8.4.3 Breakdown by company size

In Croatia, the fish processing industry consisted of four segments in 2020 and 2021 and dropped to three segments in 2016 (<=10, 11-49, 50-249, >=250). In the reference period, the segment with the most enterprises is the one with 50-249 employees represented with 14 enterprises in 2021. Also, in 2021, after four years of absence, there were two companies with >= 250 employees, which during 2020 and 2021 significantly increased the number of employees

The segment with less than 10 employees demonstrated the continuation of stagnation in economic performance and proved to be the most vulnerable segment in the sector when it comes to sudden shock and crises. On the other hand, it is important to stress that small companies often combine activities with agriculture, fishing, tourism, which is the cause of the fluctuation in number of enterprises (20 in 2013, 9 in 2021) and the results of their performance. Although they do not have a big economic influence in the Croatian fish processing industry, they are very important in local communities from a social standpoint and in preserving the tradition in fish processing. In addition, small family businesses are often a platform for innovations and apart from mass production, they tend to create unique products with added value, such as smoked fish - local or imported.

In addition, some small enterprises kept their traditional activities of basic fish processing with the main products such as frozen and packed fish, branded as domestic product. In both cases, one of the main challenges in fish processing could be to ensure a sustainable source of domestic raw material during the year and to ensure labour force on the fishing vessels and in processing industry.

Total income for these enterprises decreased from EUR 3.1 million in 2019 to 1.1 million in 2021. The economic performance of this segment, additionally struck by COVID crises and closures, is still far behind other three segments.

Some enterprises in this segment failed in overcoming the economic crisis (started in 2008) as they have started businesses as middle-sized companies at the beginning of the 2000s and, hit by crisis, continued with minimal business activity and number of employees over the reference period. Although some of them recovered by the end of the period, many had to close the company. After a period of crises, only several small family companies in this category with a long tradition in fish processing managed to maintain fish processing activities as they have already established their market position and specialized for higher added-value products as smoked or dried fish. There is an additional aspect of this; the evolution of any small or middle-sized company usually, before shutting down, ends with a few employees and minimum activity, impacting the economic performance of the segment in total.

Most enterprises in the size category between 11 and 49 employees are in Istria peninsula and Zadar area, traditionally oriented to catch of small pelagic fish, with frozen fish, mostly sardine and anchovy, and in smaller part salted anchovy as the main products. In this category, it is obvious that total income is based on turnover (93.5%) and in smaller percentage on other income, which indicates dependency on domestic raw material. Hence, the total income decreased from EUR 4.1 million in 2013 to EUR 1.9 million in 2015 and then increased to EUR 11 million in 2021. Although the segment, during the period 2013-2019 was rather small and inconsistent in terms of economic indicators (between 3 and 7 companies), during 2020 and 2021 it stabilised (8 companies) and proved it has a great potential for growth by enhancing the net profit (EUR 1.1 million in 2020, EUR 16 million in 2021) and other economic indicators. Although slowed down in 2021, the period was characterized with fast growth of some small companies followed by large investments in processing technology and the opening of new processing plants. It is important to stress that these companies are aware of the importance of the education, and they invest into education of the employees as well as into technology development.

The most important segment in Croatian fish industry is certainly the size category with 50-249 employees. The category demonstrates the largest income, number of total value of assets, full-time employment and FTE.

The main products of this segment were frozen sardine and anchovy and canned sardine. Very good quality of anchovy and catch restrictions on anchovy in some Mediterranean countries attracted investors from Spain and Italy. By the beginning of 2014, the situation on anchovy market stabilized and sardine took place as a main fish processing product. At the same time, production of anchovy dropped by 95% compared to record in 2014. Nevertheless, fish processors are being

more focused on developing diverse products with added value including anchovy. Because of the modernized business processes, in case of the lack of raw material, there is still a possibility of import and transport of fresh fish in less than 24 hours, but with higher operational costs. Existence of fish processing plants on islands could not be possible for most of the producers, because of, as mentioned before, high expenses and lack of the labour force. Only the two processors kept their processing plants on islands easily accessible by ferry and close to the important fishing areas, while others with less favourable locations shut down or moved their facilities to industrial/business zones or abroad. The economic indicators for this segment demonstrated slight improvement (EBIT, Net profit) or stagnation (GVA, operating cash flow) compared to 2020. The rise of production costs of 4%, compared to rise of total income of 3% caused the slowing down, nevertheless, due the investments and technological advancement, this segment is expected to demonstrate further improvement in the upcoming period.

The data for >=250 segment could not be analysed due to the confidentiality reasons.

Table 8.4.3 Economic performance by company size, Croatia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	5.5	9.5	15.5	3.6	4.7	3.3	3.1	1.4	1.1	-22%
Total production costs	5.4	8.7	10.4	2.6	3.2	2.9	2.9	1.6	1.0	-38%
Gross Value Added	0.8	1.5	5.9	1.5	2.0	0.6	0.4	-0.1	0.2	447%
Operating Cash Flow	0.1	0.8	5.2	1.1	1.5	0.4	0.2	-0.2	0.1	131%
Earning before interest and tax	-0.4	0.4	4.9	0.9	1.3	0.3	0.1	-0.3	0.0	118%
Net Profit	-0.6	0.3	4.7	1.0	1.2	0.3	0.1	-0.3	0.0	113%
between 11 and 49 employees										
Total Income	4.1	11.0	1.9	2.9	4.6	5.5	8.0	13.9	11.1	-20%
Total production costs	3.0	6.7	1.5	2.8	4.3	4.9	7.1	11.7	8.6	-27%
Gross Value Added	1.4	5.5	0.9	0.6	1.1	1.6	2.8	4.1	3.7	-12%
Operating Cash Flow	1.1	4.3	0.4	0.0	0.2	0.6	0.9	2.2	2.5	15%
Earning before interest and tax	1.0	4.1	0.4	0.0	0.0	0.1	0.0	1.3	1.8	35%
Net Profit	0.9	4.0	0.4	-0.1	0.0	0.1	0.0	1.1	1.6	52%
between 50 and 249 employees										
Total Income	53.3	60.6	70.8	113.9	126.5	131.7	152.0	206.6	212.2	3%
Total production costs	41.6	55.7	51.7	93.0	107.4	115.4	128.5	177.7	184.2	4%
Gross Value Added	16.8	13.8	27.4	35.2	35.7	35.9	44.9	52.9	48.5	-8%
Operating Cash Flow	11.7	4.8	19.1	21.0	19.1	16.3	23.5	28.8	28.0	-3%
Earning before interest and tax	9.6	1.6	15.7	14.4	10.7	8.6	15.1	16.2	16.4	1%
Net Profit	8.8	-0.5	15.2	13.9	10.3	7.4	13.6	15.6	15.7	0%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

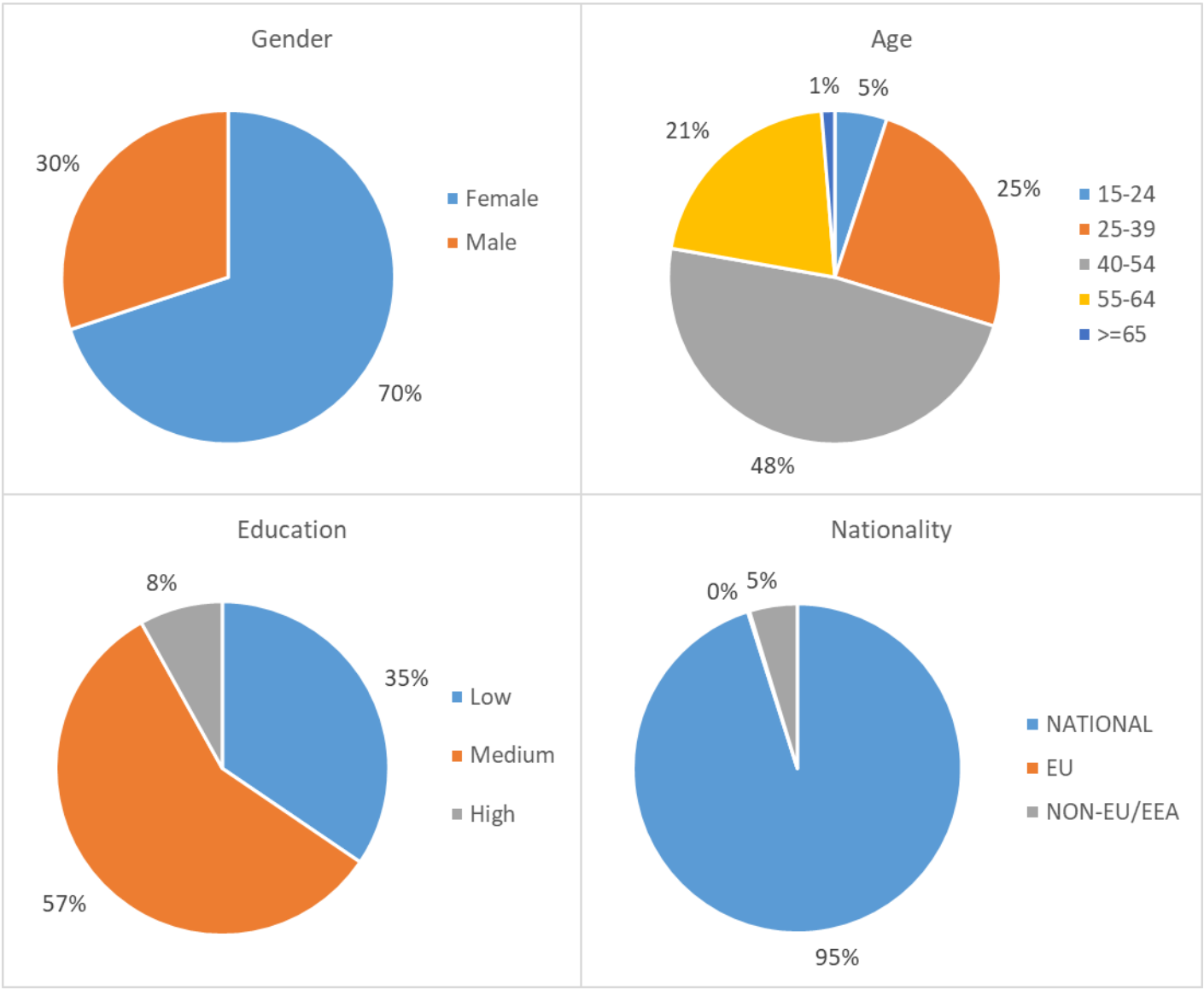
8.4.4 Socio-demographic structure

In line with the Commission Delegated Decision (EU) 2021/1167 and Croatian Work Plan for data collection in the fisheries and aquaculture sectors, data on socio-demographic structure in processing industry has been collected for 2020. The data refers to the total population of companies carrying out processing as the main activity. The data collection has been carried out together with the economic data collection, on the individual (employee) level. In 2020, there were 2 250 employees in the sector, out of which 78% were employed in size category 50-249 employees.

The Croatian fish processing industry is traditionally dominated by a female labour force. Since the early days of processing, women carried out most of the manual work on the assembly line, and that did not change significantly with the technological improvement - in 2020, 70% of employees were women, while male employees covered 30%. Compared to 2017 data, the share of women increased by 8%, which could be explained by the economic improvement of the sector, namely

with the growth of the middle and large companies which required additional workers, mostly on the processing line. By company size, with some variations, women dominate in all size segments (1-10 59%, 11-49 79%, 50-249 68%, >=250 76%).

Figure 8.4.1 Socio-demographic characteristics, Croatia, 2020



Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

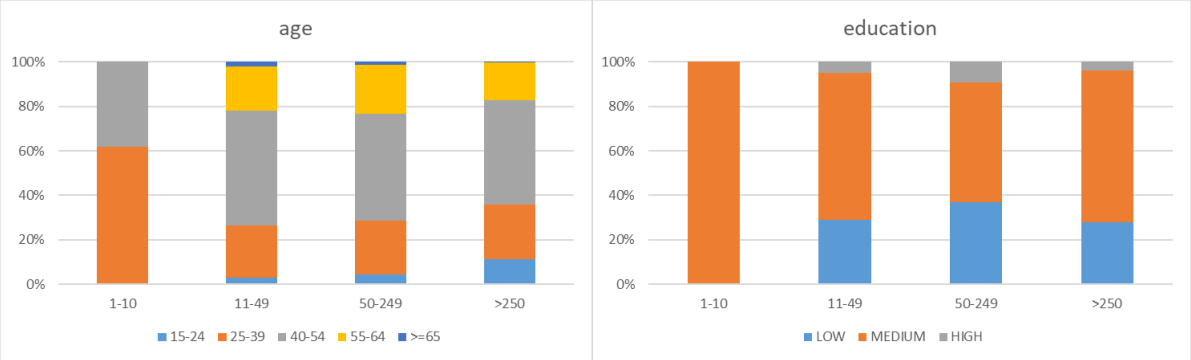
Industry growth and increased demand for the labour force are also reflected in the national structure. In 2020, there were 5% of foreign workers, mostly female, non-EU/EEA workers, in segments 11-49 and 50-249 employees. This is a significant increase compared to 2017 (0.5% of foreign employees), and due to the shortage of the labour force, it could be expected that the share of foreign workers will further increase.

The assembly line jobs are often prone to seasonality and on the other hand are unpredictable in terms of given amount of work in a short period since most major processing plants still depend on the domestic catch. Thus, working conditions do not contribute to the attractiveness of the sector, which also reflects in age structure. The largest share of employees is in the age category of 40-54 years (48.04%), 21% is in the category 55-64 years, 24.67% 25-39 years, 5.07% 15-24 years and 1.29% >=65 years. The domination of the older population in the processing industry, especially in big-size companies indirectly reflects the importance of this industry for the local community (mostly rural areas) by hiring older employees, which often have very low odds in the

labour market. On the other hand, a higher share of young employees in category 1-10 suggests the attractiveness of this segment and the potential for further growth of small entrepreneurship.

By education level, most of the employees (57%) have a medium education level (high school), 35% low (primary school) and only 8% high education level. By size categories, the largest share of highly educated employees is in the category of 50-249 employees. This is due to the organizational and management structure of large companies, but also due to technological advancement where creating products of added value requires highly educated and specialized personnel.

Figure 8.4.2 Distribution of the employees by enterprise size, age and education, Croatia, 2020

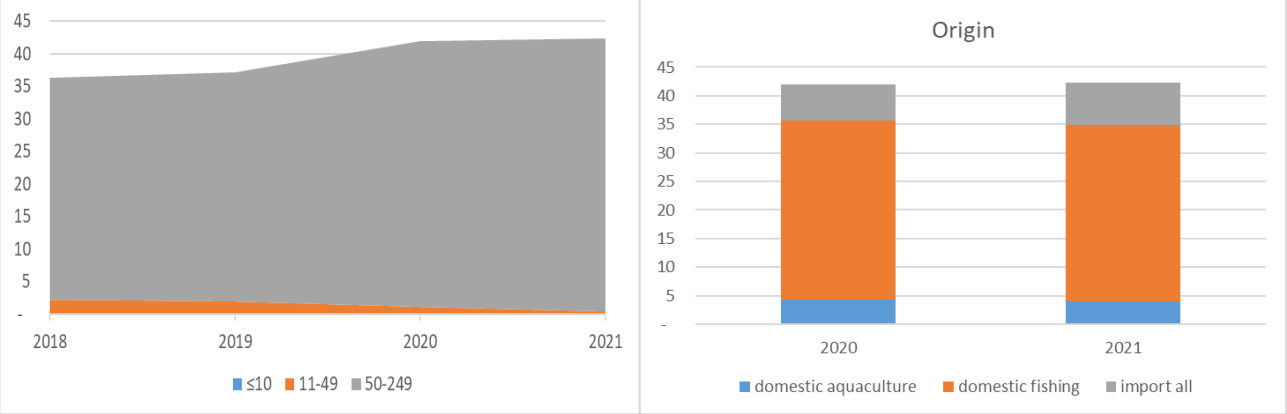


Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.4.5 Raw materials

As well as in terms of number of enterprises, turnover and employment, segment 50-249 employees cover nearly 95% of raw material. Data on raw material has been disaggregated according to origin: domestic – fisheries, domestic – aquaculture and imported raw material. In 2021, 73% of raw material originated from domestic catch (mostly small pelagic fish – sardine and anchovy), 18% of raw material was imported and remaining 10% originated from aquaculture.

Figure 8.4.3 Distribution of raw material by enterprise categories, in thousand tonnes, Croatia, 2018-2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.4.6 Trends, drivers and outlook

After many initial problems related to the adjustment of new conditions of business and establishing markets when entering the EU, a structural improvement and growth is evident in all segments. New markets, EU and national support and the modernization of the entire business created a new momentum for the expansion. Fish processing enterprises invested significant funds into new processing plants, which reflected in the decrease of the number of enterprises in segment with less than 10 employees and an increase in the number of enterprises in the segment with 50-249 employees. The main reason was low-cost land properties in business zones and availability of

labour force and raw material. In addition, business zones have good connection with main roads and highways, which influence the distribution of the products as well as input of the raw material. In addition, major companies with a long tradition in fish processing invested in modernization and new technologies in order to improve technical standards and adapt production for EU market. These changes caused an increase in the total number of employees and improvement of the economic performance.

Although the COVID-19 pandemic affected all business segments, the expansion of the fish processing industry in Croatia has not been significantly disrupted by the crisis. After the initial shock and adaptation of business processes, most of the processors ended the year with different than planned, but still positive, or at least slightly negative results. Since most of the processors is export-oriented, the crises caused challenges in transport, closing boundaries and other logistic issues but having a stable network of clients ensured to overcome these challenges and risks.

The industry has not been hit directly by the war in Ukraine, nevertheless, the increase in global energy prices affected all enterprises and consumers. Energy costs increased from 3.7% of the total production cost in 2020 to 4.1% of the total production cost in 2021. Additionally, the rise of raw material prices could further lead to an increase in consumer prices, which might have an effect on overall fish consumption and needs to be considered in terms of promoting fish consumption. According to the Harmonized Index of Consumer Prices, the consumer price of fish did not change significantly in 2021 compared to 2020. The first sales price increased by 13% in 2021 and by 16% in 2022, which is mostly due to a decrease in the landing quantity of sardines (19% in 2021), which makes up for 60-70% of total landing on average and is the main raw material for processing. In 2022, the prices of sardine and anchovy increased by 19% and 5% which will also affect consumer prices, and the overall results of the price rising will be visible in the next reporting period.

The sector is characterized by the dominance of female workers (70%) especially in middle-sized and large companies, which dominate in the structure, with assembly line jobs, which started some positive demographic new trends in rural areas. The new conditions of work reflected prominently to the production in terms of volume and value. However, in the recent period the industry faced the declining interest of working in processing companies which leads to the import of labour and will affect socio-demographic structure in the following period. In addition, lack of educated and qualified employees demands more investment in permanent education to keep track with market conditions.

The most important product in terms of volume is frozen fish, predominantly whole fish, but in terms of value, the most important product is canned fish. While production of frozen fish is steadily rising from 2013 to 2021, production of canned sardine, anchovy and tuna variated over the period with steady growth in 2020 and 2021, regardless of challenges encountered by COVD-19 pandemic.

So far, under the EMFF, 11.29% of contracted funds refer to Measure IV.4. "Processing of fishery and aquaculture products". For some companies applied for support, fish processing was not considered as their main activity. In previous years, they were mostly involved in aquaculture or trade and distribution of fish products. Therefore, major funds go into construction investments and additional facilities for improvements of production processes. It is important to stress that due to different kind of main activity, these companies were not a part of the fish processing population so the total amount of subsidies on investment from the EMFF does not correspond to given data in national chapter. During COVID crisis, additional tender has been held to overcome difficulties caused by the crisis.

Management measures already affected fish processing industry as most of the middle sized and large companies depend on the domestic raw material. Main challenge for fish processors in Croatia is how to provide enough raw material and planning of processing by considering cessation of fishing.

Although major processing companies in Croatia made some large investments in the previous period, diversity in companies' activities should be taken to account to assess the future expansion. Some investments of companies with processing as non-main activity are expected which could affect this indicator in the future.

In recent years, there has been a significant encouragement to join producer organizations, which have their own production capacities, permanent members - fishers and therefore continuous input

of raw materials, and on the other hand reduced costs. Investments in fishing ports also significantly support activities of fish processing companies.

Given that processors in Croatia are mostly dependent on catches of sardines and anchovies under strict management measures - in the future the development of the sector, i.e., profit, will depend on added values.

8.4.7 Data coverage and quality

Data collection covered enterprises with fish processing as the main activity and enterprises with processing as an additional activity. Since there are few companies in Croatia entirely committed to processing industry, the target population was determined through multiple approaches.

Companies that according to Veterinary Directorate have approved establishments for the processing of marine organisms were sent a questionnaire with the additional statement in case they did none of the processing activity in a reference year or considered processing as an additional activity. Additionally, after checking questionnaires, balance sheets were used to cross-check data. This approach resulted in some discrepancies of population size and economic indicators compared with EUROSTAT data but also compared to the list of users of subsidies on investment through measures targeting fish processing.

It must be pointed out that in a few cases, the processing activity was stated as the main activity in terms of employment and production at national level although other activities, for example aquaculture, generated larger income. In that case, a company was included in target population as its share in total production and economic performance was of extraordinary importance for the sector.

8.5 Czechia

In 2021, according to Eurostat data, there were 20 enterprises whose main activity was fish processing in Czechia, as was in previous year. The total number of employees in the Czechian fish processing industry decreased by 4% to 762, while employment measured in FTE decreased by 3%.

The total income in 2021 was record high for the 2008-2020 period and reached EUR 120 million and compared to 2020 it increased by 20%. The growth of total income of fish processing in Czechia was continuous for the last 7 years and in 2021 was higher by 33% compared to multiannual (2014-2020) average. Total purchases of goods and services was record high for the period of 2014-2021 and increased by 26% compared to 2020. Personnel costs for 2021 further increased by 8% to EUR 16.1 million despite lower number of employees.

In 2021, GVA increased by 3% to EUR 23.8 million but gross profit decreased by 6% to EUR 7.7 million, however the latter was 30% higher than the multiannual average (2014-2020). Primary reason for the decrease of gross profit has been large growth of total purchases of goods and services, with added effect of increase in personnel costs.

According to the Prodcom data [8], the Czechian fish processing industry produced 8 897 tonnes of fishery products in 2021, 65% increase compared to 2020, mainly due to substantial increase of fresh or chilled fish fillets and fish meat (4-fold increase, from 769 to 3 270). In 2021, 63% of all fish processing produce were frozen fish fillets, which increased in production quantity by 22%. Exports of fresh, chilled, or frozen fish fillets for 2021 increased by 8.2% and contributed to 34.1% of all exports of fish products. For 2022, production of processed fish produce decreased by 3% to 8 664 tonnes.

Table 8.5.1 Overview, Czechia, 2014-2021

Variable	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)									
Total enterprises	20	20	21	21	20	19	20	20	0%
Total persons employed	743	780	769	784	753	756	792	762	-4%
Unpaid labour	25	30	24	22	24	24	28	27	-4%
FTE	710	742	741	757	725	723	754	728	-3%
Income, expenditure and investments (million €)									
Production value	72.4	74.1	76.7	79.2	81.8	89.7	95.7	114.4	20%
Turnover									
Total income	82.9	84.7	85.9	88.7	92.1	96.4	99.9	120.0	20%
Total purchases of goods and services	69.8	71.0	73.0	71.9	73.7	79.6	79.3	100.3	26%
Personnel costs	9.0	9.4	10.0	11.5	12.4	13.2	14.9	16.1	8%
Gross investment in tangible goods	2.8	2.1	3.7	7.8	1.8	2.9	1.7	2.9	70%
Economic performance (million €)									
Gross Value Added	13.7	14.8	14.7	17.6	18.9	18.9	23.2	23.8	3%
Gross profit	4.7	5.4	4.7	6.2	6.5	5.6	8.2	7.7	-6%

Source: Eurostat, 2021 & 2023.

Data coverage and quality

No data were submitted by Czechia in this data call. For that reason, the EWG prepared this section based on Eurostat's Structural Business Statistics data, which are publicly available.

[8] https://ec.europa.eu/eurostat/web/prodcom.

8.6 Denmark

8.6.1 Overview

The Danish fish processing industry is mainly located around the most important fishing harbours in Denmark. These are located in the north and western parts of Jutland. Denmark is in top ten of the world largest importers and exporters of fish and fish products and is seen as the entrance to the EU market from the North Atlantic. Thus, the Danish processing industry produces a large variety of products based on many different species. The raw materials for the industry are purchased on the global market for fish and fish products and the dependency on domestic landing is limited. Nevertheless, the catches of cod, plaice, sole, *nephrops*, herring and mackerel are of some importance. Furthermore, some Danish regions and islands are depending on the local fisheries and processing industries, because alternative job opportunities in these areas are low.

The industry processing salmon is the most important in economic and employment terms and salmon dominate the Danish import and export. The industry use fresh raw materials produced in aquaculture in Norway and Scotland, whereas frozen raw material are for most part imported from Chile. A large amount of salmon is passing through Denmark destined for the European marked, especially the market for fresh salmon in France and Germany.

The Danish fishmeal and -oil factories are the second most important industry segment, which are dependent on domestic catches for reduction; however, they are also receiving raw material from countries like Norway, Iceland, UK and Sweden. The processing of cod- and flatfish also remain an important part of the industry together with processing of herring and mackerel. The shrimp and mussel processing depend to a high extent on the import of shrimps from Greenland, whereas the mussels are harvested in Danish waters.

In Table 8.6.1, an overview of the development in the number of fish processing enterprises and the numbers of employees and full-time employees are shown. The overall structural development in the sector can be characterized by a decline in the number of enterprise and employment.

Table 8.6.1 Overview, Denmark, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	103	100	108	100	99	97	92	91	90	-1%
≤ 10 employees	53	47	54	48	45	43	42	40	41	2%
11-49 employees	29	28	31	29	32	32	31	31	30	-3%
50-249 employees	21	25	23	23	22	22	19	20	19	-5%
≥ 250 employees	0	0	0	0	0	0	0	0	0	0%
Employment (number)										0%
Total employees	3,453	3,613	3,614	3,761	3,757	3,731	3,510	3,220	3,196	-1%
FTE	3,039	3,028	3,054	3,212	3,153	3,083	2,832	2,707	2,638	-3%
Indicators										0%
Turnover (million €)	2,230	2,269	2,489	2,726	2,610	2,549	2,503	2,319	2,347	1%
FTE per enterprise	29.5	30.3	28.3	32.1	31.8	31.8	30.8	29.7	29.3	-1%
Average wage (thousand €)	61.3	62.9	65.6	63.1	65.0	66.7	70.0	69.7	69.2	-1%
Unpaid work (%)	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	3%
Enterprises doing fish processing not as main activity										0%
Number of entreprises	5	4	5	7	6	5	4	4	5	25%
Turnover attributed to fish processing (million €)										0%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

In 2021, there were 90 enterprises in the Danish fish processing sector. From 2008 to 2021, the number of enterprises decreased from 117 to 90, corresponding to a 23% decrease. The sector is dominated by small and middle-sized enterprises. In Denmark, 41 enterprises have less than 10

full time employees, corresponding to 46% of the total number of enterprises. Furthermore, 30 enterprises have between 11 to 49 employees and 19 have between 50 to 249 employees. There is no large fish processing company with more than 250 full time employees.

In total, the Danish fish processing sector employed 3 196 persons in 2021, which was a decrease of 9% and 8% compared to 2020 and 2019, respectively. From 2008 to 2021, the numbers employed decreased by 27%. The number of fulltime employees also decreased from 4 147 in 2008 to 2 638 in 2021, corresponding to a decrease of 36%. The average wage per FTE decreased 1% from 2020 to 2021. From 2008 to 2021, the average wage increased from EUR 49 thousand to EUR 69 thousand corresponding to an increase of 42%. The number of persons registered as unpaid labour is of minor importance in the Danish industry, constituting only 0.5% of the workers in 2021.

The number of enterprises processing fish outside the fish processing industry is limited. There were only five enterprises in this segment, in 2021. The number has been between three and seven enterprises from 2008 to 2021. The value of the production is not shown due to rules of discretion, where larger enterprises can be identified if only a few enterprises is present in a group.

8.6.2 Economic performance

In Table 8.6.2, the economic performance for the Danish processing industry for the period 2008 to 2021 is presented. In 2021, the total income reached EUR 2.3 billion, which was an increase of 1% compared to 2020, but a 6% decrease compared to 2019. The total income consists of turnover and other income of which turnover and other income make up for 99% and 1%, respectively. There are no registered subsidies in the Danish fish processing industry.

The total cost of production reached EUR 2.2 billion in 2021, which was 1% higher than in 2020, but a decrease of 9% compared to 2019. The most important cost component is the purchase of fish and other raw materials, which make up for 73% of the total cost. Other operational cost covers 18%, whereas wages and salaries cover 8%. Energy cost make up for 1% of the total production cost.

From 2020 to 2021, the depreciation of capital was increased by 1%, whereas the net financial cost decreased to EUR 31 thousand, corresponding to a positive income. Total assets and net depth both decreased by 8%, whereas the net investment decreased by 27%. The Gross Value Added (GVA) is calculated as the total income deducted by energy cost, fish and other raw material cost and other operational cost. The GVA reached EUR 339 million in 2021, which was an increase of 2% from 2020.

Earnings before interest and tax (EBIT) have been positive throughout the whole period from 2008 to 2021 and increased 13% from 2020 to 2021. In 2008, the Danish fish processing industry experienced a negative net profit, but since then the net profit has been positive. From 2020 to 2021, the net profit increase to EUR 153.4, which was an increase of 19%. This is the second highest net profit obtained over the years only surpassed by 2017.

The labour productivity increased by 5% from 2020 to 2021, from EUR 122.2 to EUR 128.4. All other productivity and performance parameters showed a positive trend from 2020 to 2021. From 2019 to 2021, all productivity and performance parameters increased. Even though, the sector has been exposed to both Covid-19 and Brexit, the performance parameters are positive and the sector seems quite robust to outside coming chocks.

Table 8.6.2 Economic performance indicators, Denmark, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	2,229.8	2,269.4	2,488.9	2,726.4	2,610.2	2,549.0	2,503.0	2,319.4	2,347.3	1%
Other income	-22.0	23.3	78.2	31.0	24.2	10.4	22.2	16.4	17.1	4%
Operating subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Total Income	2,207.8	2,292.7	2,567.2	2,757.4	2,634.4	2,559.4	2,525.2	2,335.8	2,364.4	1%
Expenditure (million €)										
Purchase of fish and other raw material for production	1,361.1	1,397.7	1,616.7	1,632.6	1,486.0	1,840.5	1,830.9	1,567.1	1,612.4	3%
Wages and salaries of staff	185.2	189.5	199.4	201.9	204.0	204.6	197.5	187.8	181.6	-3%
Imputed value of unpaid labour	1.0	1.0	1.0	1.0	1.1	1.0	0.8	0.8	0.8	0%
Energy costs	33.8	34.7	38.9	25.2	21.8	25.6	24.0	19.1	18.5	-3%
Other operational costs	525.0	531.0	554.9	761.2	608.9	373.1	362.3	418.9	394.8	-6%
Total production costs	2,106.1	2,153.9	2,410.9	2,621.9	2,321.8	2,444.8	2,415.6	2,193.7	2,208.2	1%
Capital Costs (million €)										
Depreciation of capital	33.4	31.0	32.1	35.6	34.5	38.1	37.0	33.3	33.7	1%
Financial costs, net	11.0	-11.2	-1.5	-6.4	-19.5	-0.7	-5.7	-20.6	-30.9	50%
Capital Value (million €)										
Total value of assets	1,209.1	1,206.1	1,355.4	1,382.9	1,486.6	1,548.5	1,615.1	1,599.1	1,477.7	-8%
Net Investments	40.5	37.2	44.4	70.8	41.7	49.3	36.6	25.1	18.2	-27%
Subsidies on investments				0.0	0.0	0.0	0.0	0.0	0.0	0%
Debt	715.9	668.0	706.5	768.1	799.2	865.8	888.5	850.8	783.2	-8%
Economic performance (million €)										
Gross Value Added	287.9	329.3	356.7	338.3	517.7	320.2	308.0	330.7	338.7	2%
Operating Cash Flow	101.7	138.8	156.2	135.5	312.6	114.6	109.6	142.1	156.2	10%
Earning before interest and tax	68.2	107.8	124.1	99.8	278.1	76.4	72.6	108.8	122.5	13%
Net Profit	57.2	119.0	125.6	106.3	297.7	77.2	78.4	129.4	153.4	19%
Productivity and performance Indicators										
Labour productivity (thousand €)	94.7	108.8	116.8	105.3	164.2	103.9	108.8	122.2	128.4	5%
Capital productivity (%)	23.8	27.3	26.3	24.5	34.8	20.7	19.1	20.7	22.9	11%
GVA margin (%)	13.0	14.4	13.9	12.3	19.6	12.5	12.2	14.2	14.3	1%
EBIT margin (%)	3.1	4.7	4.8	3.6	10.6	3.0	2.9	4.7	5.2	11%
Net profit margin (%)	2.6	5.2	4.9	3.9	11.3	3.0	3.1	5.5	6.5	17%
Return on Investment (%)	5.6	8.9	9.2	7.2	18.7	4.9	4.5	6.8	8.3	22%
Financial position (%)	40.8	44.6	47.9	44.5	46.2	44.1	45.0	46.8	47.0	0%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.6.3 Breakdown by company size

In Table 8.6.3, the numbers of enterprises distributed on size categories are shown. The segment containing enterprises with 10 or less employees is the largest in terms of number of enterprises (41) but are in economic terms the least important. In 2021, there are one enterprise less in this segment than in 2020. The income increased with 27%, but the cost also increased with 33%. Overall, this resulted in a decreasing GVA of 26%, and the EBIT was for the first time since 2008 negative. Thus, the net profit was also negative dropping from EUR 16.9 million in 2020 to EUR -2.0 million in 2021.

The segment with 11 to 49 employees covers 30 enterprises. The segment experienced an increase in total income of 9% and an increase of total cost of 6%. This resulted in an increase in GVA of 35% from 2020 to 2021. Operating cash flow and EBIT increased 109% and 167%, respectively. Finally, the net profit increased from EUR 11.6 thousand in 2020 to EUR 27.7 thousand in 2021, corresponding to an increase of 139%.

The segment with 50-249 employees covers the largest enterprises in Denmark. The segment consist of 19 enterprises in 2021. This segment covers 75% of the total income and 74% of the total cost for the whole sector. For this segment, the income decreased 2% and the cost decreased with 2%, resulting in a decrease in the GVA of 4%. This also resulted in a decreased operating cash

flow of 1% and slight decrease in the EBIT. However, the net profit increased to EUR 127.7 thousand in 2021 compared to EUR 101.0 in 2020. The improvement in the net profit in 2021 was a result of positive financial income.

Overall, the small enterprises with less than 10 employees are increasing production, however; the net profit is negative due to higher costs. The medium segment with 11-49 employees are increasing production without increasing the cost in the same pace resulting in higher profit and better performance. The largest enterprise with 50-249 employees had a small reduction in both income and cost, nevertheless; they have an increase in net profit due to positive financial income.

Table 8.6.3 Economic performance by company size, Denmark, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	116.6	101.3	99.4	106.6	43.5	43.4	53.4	39.5	50.0	27%
Total production costs	112.5	98.0	96.6	103.1	42.1	42.1	52.3	37.5	49.9	33%
Gross Value Added	13.5	11.2	11.1	12.7	9.1	9.6	9.9	10.7	7.9	-26%
Operating Cash Flow	4.0	3.3	2.8	3.5	1.4	1.4	1.1	1.9	0.1	-96%
Earning before interest and tax	2.1	2.0	1.4	2.1	0.5	0.2	0.0	0.9	-1.5	-266%
Net Profit	1.4	1.5	1.1	2.0	15.9	3.3	8.1	16.9	-2.0	-112%
between 11 and 49 employees										
Total Income	540.2	509.1	533.4	704.2	671.8	659.6	687.0	502.7	549.6	9%
Total production costs	519.2	491.7	511.1	681.7	600.7	582.7	664.9	486.9	516.6	6%
Gross Value Added	67.2	55.7	65.2	66.9	116.7	117.1	69.3	58.0	78.0	35%
Operating Cash Flow	21.0	17.4	22.3	22.5	71.1	76.9	22.1	15.8	33.0	109%
Earning before interest and tax	12.7	11.4	14.8	14.1	65.1	70.1	15.2	9.8	26.3	167%
Net Profit	9.3	10.8	15.0	14.5	64.2	68.5	12.3	11.6	27.7	139%
between 50 and 249 employees										
Total Income	1,551.0	1,682.3	1,934.3	1,946.6	1,919.0	1,856.3	1,784.8	1,793.6	1,764.8	-2%
Total production costs	1,474.4	1,564.2	1,803.3	1,837.1	1,679.0	1,820.0	1,698.4	1,669.2	1,641.7	-2%
Gross Value Added	207.2	262.4	280.4	258.6	391.8	193.5	228.8	262.1	252.8	-4%
Operating Cash Flow	76.6	118.2	131.1	109.5	240.1	36.3	86.5	124.4	123.2	-1%
Earning before interest and tax	53.4	94.4	107.9	83.7	212.6	6.1	57.5	98.1	97.7	0%
Net Profit	46.6	106.7	109.5	89.8	217.6	5.3	57.9	101.0	127.7	26%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.6.4 Socio-demographic structure

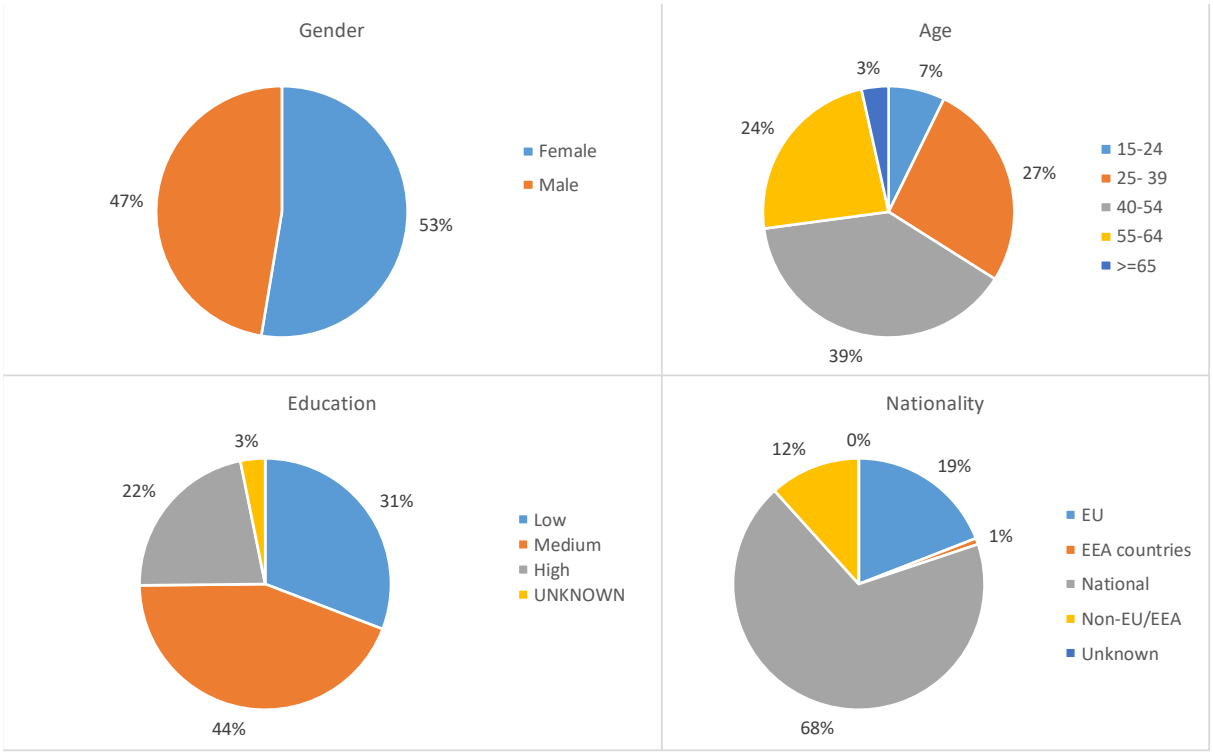
In addition to the economic data, social data on gender, age, education and nationality are collected, and integrated with the economic data, using data from Statistics Denmark's "Register-Based Workforce Statistic" and "Labour Market Account Statistic". The collection of social indicators for the Danish processing sector covers the years 2016 to 2021, which is provided for the 2023 data call. The social variables were included in the annual economic survey, which enabled full coverage of the social variables for the Danish industry (census data) as totals for the industry as well as distributed on size categories.

In 2021, the majority of employees were female covering 53%, whereas male employees covered 47%, which is almost the same distribution as in 2019. The proportion of female for each size category of enterprises was 56%, 56% and 51% for the segments 0-9, 10-49 and 50-249. Thus, there is a larger percentage of females in the smaller enterprises, which was also the case in 2019. The age groups collected were 15-24, 25-39, 40-54, 55-64 and >= 65. For the overall industry, the age group 15-24 covered 7%, the group 25-39 covered 27%, the group 40-54 covered 39%, 55-64 covered 24%, whereas the group >=65 only covered 3%.

From Figure 8.6.2 it can be seen that the percentage distribution by age is almost similar to the total distribution in all the size categories. However, for the smallest enterprises, the age group between 15-24 cover 15%, which is higher than in the other two groups, whereas the group

between 40-54 only cover 28%, which is less than the two other two groups, with the rest being almost the same.

Figure 8.6.1 Socio-demographic characteristics, Denmark, 2021

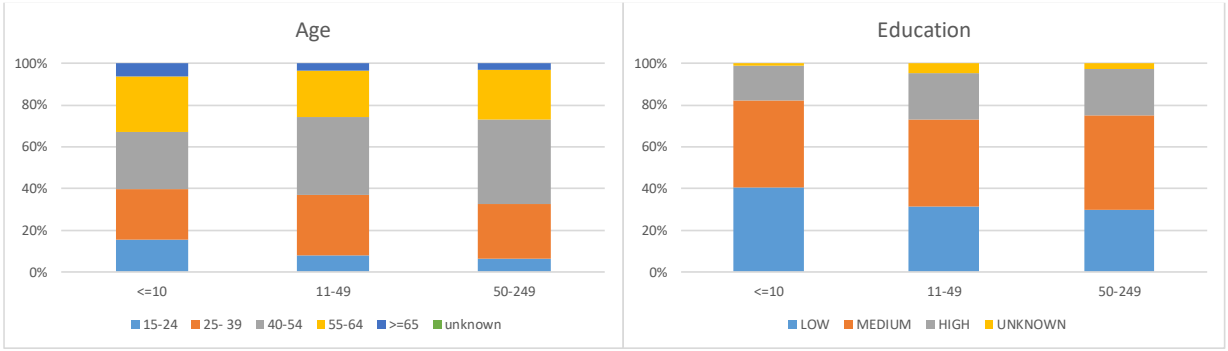


Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

In terms of education, 31% had a low education (primary school), 44% a medium education and 22% had a high education. From Figure 8.6.2, it can be seen that enterprises with less than 10 employees have the highest share of low educated employees. Larger enterprises seems to have a higher share of highly educated employees. This can be explained by the fact that these enterprises need more management with higher educations than the smallest enterprises and thus higher more educated people.

In Figure 5.6.1, the percentage of different nationalities employed in the processing industry is shown. 68% is coming from Denmark (National), 19% from other EU countries, 1% from EEA countries and finally 12% is represented by other nationalities. Compared to 2019, the numbers of different nationalities employed are almost identical.

Figure 8.6.2 Distribution of the employment by age and education according to enterprise size, Denmark, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Looking at enterprise size, the proportion of Nationals for each size category of enterprises was 81%, 70% and 67% for the segments 0-9, 10-49 and 50-249. Thus, the smallest enterprises also have the highest percentage of Danish nationals employed. This result seems in accordance with what could be expected, since larger companies most often have a more international profile focusing on the international market, and they therefore need employees with a broader international profile. On the other hand, smaller enterprises focus on the domestic market and therefore most often hire employees from the national labour force.

8.6.5 Raw material

Denmark is not collecting information on raw material used as input for the processing industry, which is in accordance with the Danish data collection program. However, the commodity sales (output) from the industry is collected in order to get information on which species are processed. From this data, it is possible to divide the industry into segments based on the main species produced.

Based on the commodity data the Danish industry is divided into the following segments:

- Cod and flatfish
- Herring, mackerel, fishmeal and –oil (pelagic species)
- Shrimp and mussels
- Salmonids
- Mixed species

In Table 8.6.4, the distribution of species in each segment can be seen. The table reveals that the processing industry is quite specialized when it comes to processing of different species.

Table 8.6.4 Percentage of commodity production based on different species for each segment, 2022

	Cod- and flatfish	Herring and mackerel	Shrimp and mussels	Salmonids	Other species	Sea-weed	Scrapings	Fish for reduction	I alt
Cod- and flatfish	**89**	0	0	2	8	0	0	0	100
Herring, mackerel, fishmeal and -oil	0	**32**	0	0	4	0	5	**58**	100
Shrimp and mussels	0	0	**86**	0	14	0	0	0	100
Salmonids	2	0	0	**94**	3	0	0	0	100
Mixed species	**54**	1	4	1	**33**	7	0	0	100

Source: Based on the commodity sales statistics, Statistics Denmark.

The most important segment in terms of income and employment is the salmon processing enterprises. They process mostly fresh salmon from the Norwegian aquaculture sector to fresh- and smoked fillets for the EU market. Danish trout produced in aquaculture is also processed in this segment, where the product is mostly smoked fillets.

The shrimp processors are also an important segment mainly processing cold water shrimp from the North Atlantic, primarily wild caught from Greenland. The mussel production is a mix of fisheries and aquaculture. The mussels fished in Denmark are small and mostly used for canning, whereas the aquaculture produced mussels are larger and sold fresh.

The fishmeal and -oil factories use fish for reduction and scrapings from the other processing companies to produce fishmeal and -oil. The products are mainly used in the production of feed for aquaculture, but also in agriculture and for human consumption (fish oil).

The enterprises processing herring are producing filets and marinated herring, whereas mackerel are mostly canned with tomato sauce or smoked. The Cod- and flatfish segment produce a mix of fresh and prepared products such as ready meals and breaded products.

In Table 8.6.5, the distribution on sales volume in tonnes divided on species is shown. For most species the volume of processed products are rather constant over time. The fluctuation over the years can be explained by changes in quotas, but also prices on the different raw materials.

Table 8.6.5 Commodity sales divided on species in tonnes

	2018	2019	2020	2021	2022
Salmonids	60.564	51.614	58.470	62.476	64.618
Codfish	43.048	39.595	37.846	43.363	34.716
Shrimp	16.058	15.509	13.882	12.006	11.707
Sild	57.105	55.391	46.158	41.753	71.213
Flatfish	785	497	792	678	571
Mackerel	12.429	15.375	13.517	*13.670	*14.407
Mussels	10.672	9.915	7.602	9.732	8.212
Other	18.535	20.576	19.862	27.710	21.173
Seaweed	557	606	573	729	746
For consumption	**219.754**	**209.078**	**198.704**	**212.118**	**227.363**
Scrapings etc.	173.651	137.031	106.680	85.367	92.122
Fish for reduction	290.615	278.051	259.667	233.593	191.424
Total	**684.021**	**624.161**	**565.052**	**531.078**	**510.909**

Source: Based on the commodity sales statistics, Statistics Denmark.
(*) Data for 2020 is used in 2021 and 2022 for two commodity numbers for Mackerel due to inconsistency in reporting.

In Table 8.6.6, the distribution of sales volume in tonnes for each segment is shown based on the commodity sales from the enterprises. The volume of production has been declining over the years, which is mainly due to a decline in product for non-human consumption. Nevertheless, it can also be seen that the largest share in weight is in the pelagic segment containing herring, mackerel and fish for reduction. The fluctuation in the mixed species segments between 2018 and 2019 can be explained by enterprises moving from one segment to another.

Table 8.6.6 Production distributed on species segments in tonnes

	2018	2019	2020	2021	2022
Cod- og flatfish	50.814	40.486	38.469	44.803	33.222
Herring, mackerel, fishmeal and -oil	391.550	473.809	407.682	*363.046	*364.578
Shrimp and mussels	31.807	23.567	22.003	22.500	21.014
Salmonids	81.672	70.198	79.654	79.486	82.728
Mixed species	128.179	16.102	17.243	21.242	9.366
Total	**684.021**	**624.161**	**565.052**	**531.078**	**510.909**

Source: Based on the commodity sales statistics, Statistics Denmark.
(*) Data for 2020 is used in 2021 and 2022 for two commodity numbers for Mackerel due to inconsistency in reporting.

Based on the above commodity sales statistics, important information on how changes in quotas and prices affect different segments in the Danish fish processing industry can be derived.

8.6.6 Trends, drivers and outlook

At this point in time, the full effect of Covid-19 impact on the Danish processing industry can be evaluated. Focusing on the production for human consumption (Table 8.6.5) it can be seen from the commodity statistics that there have been a reduction in the production from 2019 to 2020 on 5%. However, looking at the following years 2021 and 2022 the production for human consumption increased from 2020 with 7% and 14%, respectively, surpassing the production in 2019. Thus, the effect of the Covid-19 on the Danish processing industry has only been minor and has not changed the structure of the industry. A reason for this development is that many of the processed products coming from the industry goes to retailers and supermarket chains that have not experienced a decrease in demand, whereas direct sales to consumers and restaurant have been more exposed by the lockdown. Published evidence on both the aquaculture sector (Nielsen et al., 2023), the fishing sector (Asche et al., 2022) and fish value chains (Anderson et al., 2022) also show that the effect of the Covid-19 pandemic in most cases seems to be a short term effect, where there were losers due to the initial chock, but also industries discovering new possibilities.

A major concern for the Danish fisheries and fish processing enterprises has been the economic consequences following the United Kingdom's decision to leave the European Union (BREXIT). It is not only a matter of the lost fishing opportunities in British waters it also affects the negotiation between Norway and EU, which is also an important fishing ground for Danish fishers. The vessels affected by BREXIT are primarily targeting pelagic species for reduction, herring and mackerel. However, there also demersal trawlers that have been affected. Thus, the Danish processing

industry relying on these catches can be affected. Nevertheless, some of the fish can be caught in other waters and many quotas was not fully utilised, which means that it is only a minor part of the overall Danish landings that have been affected, corresponding to less than 5% of total landing. Furthermore, the processing industry have the possibility to purchase raw material at the global marked and here it is a matter of the custom duties in place for importing raw materials and exporting the final products. However, in general, the custom duties on import of fish has been low in the EU and it is, therefore; not expected to be a major issue for the overall industry. That said, there might be some specialised enterprises that can experience limitations in import and export due to higher prices.

The war in Ukraine resulted in an increase in global energy prices, which have affected all enterprises and private consumers. Overall, it is not expected that the fish processing industry is hit harder than other food producing industries. There is an increased cost for processing freezing, drying and transporting the products, but that is also the case for all other industries. Furthermore, energy is a relative small part of total production cost (1% in 2021) and has as such only a minor effect even if energy prices rise again.

In general, the industry relies on a steady inflow of raw materials. For industries that are relying on local/EU stocks a change in the availabilities of these materials can severely affect the industry income, production and employment. This is especially true for the Danish fishmeal and –oil processors that are relying on Danish catches for some of their raw material. For industries that are less dependent on local/EU stocks, raw materials are purchased from all over the world. In these segments, cod, herring and mackerel sectors are relying on Danish catches as well as raw material from countries fishing in the North Atlantic. The salmon processors are, on the other hand, solely dependent on the production originating from the aquaculture sector, especially Norway. The shrimp processors are dependent on the shrimp caught in the North Atlantic by Greenland and Canada, however, the processing of warm water shrimp is mostly relying on shrimp produced in aquaculture outside the EU.

Most EU stocks are at the moment fully exploited (FAO) and it is not expected that raw materials from EU fisheries will/or can increase in the near future. However, the EU aquaculture sector can, given the right framework condition, increase production and it is considered that the EU aquaculture sector has an unleashed potential to increase production.

In terms of certification, most Danish stocks are managed in accordance with the Marine Stewardship Council (MSC) guidelines and labelled accordingly. Processing companies are dependent on selling their product to supermarket chains, which most often demand that products are labelled to attract consumers and avoid bad publicity for selling non-sustainable products. Thus, the processing industry applies to these demands from the supermarket chains.

For the aquaculture sector in Denmark, the labelling scheme Aquaculture Stewardship Council (ASC) has been adopted, and more and more producers are following these guidelines. In Denmark, there is furthermore a governmental certification scheme for organic products, which can be applied for aquaculture products coming from both land-based farms, marine sea cages farms and mussel producers.

Fish processing as non-main activity is rather limited in Denmark. More than 95% of the fish products that are processed in Denmark can be allocated to the enterprises within the NACE code 10.20, where fish processing is the main activity. There have only been identified between 3-7 enterprise outside NACE 10.20 over the period 2008 to 2021 that have fish processing, but not as their main activity. These companies are identified if they have workplaces/production facilities doing fish processing, but the overall enterprise is not registered under the NACE 10.20. Do to confidentially reasons, the income from these companies cannot be reported.

A new regulation on aquaculture production has been implemented in Denmark, in 2012. Furthermore, a new plan for increasing aquaculture production was implemented in 2016/17 allowing for an increase in both land and sea-based aquaculture production. However, in 2019 the opportunities of expanding the sea based was closed down again. Thus, only the land-based production still seems to have the opportunity to expand. However, the distribution of licenses on emission of nitrogen is still not distributed in 2023. Nevertheless, the production in the Danish aquaculture sector is expected to slightly increase in the coming years, providing more raw materials for the industry. One reason for expecting this increase in production possibilities is that

new large production facilities are being build. The new production facilities are using intensive recirculation system with low environmental impact, and is therefore more suited for applying to the EU environmental regulations. The new systems are producing salmon and yellowtail kingfish for the high end consumer market. This could potentially have a positive effect on the processing industry in Denmark.

8.6.7 Data coverage and quality

Data for the Danish fish processing industry is collected by Statistics Denmark. The data covers all enterprises in the business register covered by NACE 10.20. Data is processed to comply with the DCF and EU-MAP in cooperation with the Department of Food and Resource Economics (IFRO). The data collected by Statistics Denmark follows the definition of the Structural Business Statistics (SBS) and is, therefore, comparable with Eurostat data and data from other member states that are using the SBS definition.

In Statistics Denmark, the Account Statistics are available approximately 20 months after the end of the reference year. Data can be disaggregated on to the four segments on numbers of employees as requested by the DCF and EU-MAP. To avoid problems with confidentiality, segments should in general include more than 10 enterprises. In Denmark, the enterprises covered by NACE 10.20 cover more than 95% of the fish processing in Denmark and is a very good estimate of the total income and production of Danish processing industry.

The data collected and processed for the DCF and EU-MAP can be slightly different from the data that are being published by Eurostat on the processing industry. This is because the data for the DCF and EU-MAP are combined from two different statistics in Statistics Denmark; the Account Statistics and the Industry Commodities Trade Statistics, where data for Eurostat only covers data from the Account Statistics and covers all enterprise under NACE 10.20. However, using the two statistics combined provide more detailed information at the work place level in contrast to the enterprise level. This allow for a more detailed statistics only including workplaces that are doing fish processing and excluding non-fish processing workplaces. This gives the best and most detailed information on the economic situation for the fish processors and on how the raw material is use in the fish processing industry. Furthermore, combining the two statistics provide information on the species used in the processing industry.

Under the EMFF, initiatives that have supported the fish processing industry has been launched, however, there are no subsidies registered by Statistics Denmark for the processing industry. An explanation of the missing registration of these funds can be that it is paid to supporting industries and not directly to the enterprises that is registered as having fish processing as their main activity, such as, marketing firms or firm engaged in producing equipment for the processing industry. Overall, the funding corresponds to less than 1% of the industries total income and is assessed to be insignificant to the Danish processing industry.

8.7 Estonia

In 2021, there were 79 enterprises whose main activity was fish processing in Estonia (Table 8.7.1). Compared to the previous year the total number of enterprises increased by nine (13%). The total number of persons employed in the Estonian fish processing industry was 1 373, corresponding to 1 359 FTEs. Compared to 2020, the total number of persons employed decreased by 1% and FTE remained stable in 2021.

The total income was EUR 181.2 million in 2021 increasing 6% compared to 2020. The value of total purchases of goods and services increased significantly by 38% to EUR 152.2 million. The personnel costs were EUR 21.8 million and decreased 1% compared to previous year.

Comparing the economic performance indicators between 2020 and 2021, then GVA decreased by 12% to EUR 26.8 million in 2021. Gross profit underwent a rise (90%) and reached to EUR 5 million.

Table 8.7.1 Overview, Estonia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019*	2020*	2021	Δ (2020-21)
Structure (number)										
Total enterprises	55	57	70	68	66	60	59	70	79	13%
Total persons employed	1,899	1,841	1,895	1,583	1,385	1,313	1,218	1,391	1,373	-1%
Unpaid labour	3	4	14	13	9	7	10	5	22	340%
FTE	1,862	1,803	1,844	1,536	1,348	1,276	1,185	1,355	1,316	-3%
Income, expenditure and investments (million €)										
Production value	161.2	168.7	162.9	123.1	125.0	128.0	129.6	164.7	173.2	5%
Turnover										
Total income	164.3	168.4	171.5	126.6	126.8	129.9	136.3	170.6	181.2	6%
Total purchases of goods and services	138.7	143.9	129.4	104.6	106.4	108.8	84.6	110.0	152.2	38%
Personnel costs	21.4	22.4	23.0	20.4	18.4	18.6	18.8	21.9	21.8	-1%
Gross investment in tangible goods	4.4	6.6	8.0	5.6	4.3	9.5	5.7	8.8	6.2	-30%
Economic performance (million €)										
Gross Value Added	29.6	27.5	25.3	22.0	23.4	23.4	25.9	30.3	26.8	-12%
Gross profit	8.3	5.1	2.4	1.6	5.0	4.8	3.3	2.6	5.0	90%

Source: Eurostat, 2023

2019 and 2020* data were provided directly by the expert and originated from Statistic Estonia*

The majority (90%) of Estonian fish processing enterprises are small, as their average number of employees is less than 50. Most of the GVA and profits were generated by the companies from 20 to 49 and from 50 to 249 persons employed.

Baltic herring and sprat caught by trawlers from the Baltic Sea are the most important local raw material for the Estonian fish processing enterprises. Estonian coastal fishing provides reasonably large volumes of expensive freshwater fish like perch, pikeperch and pike which are used as raw material for fillets. Also salmon from northern countries is imported for processing[9]. Due to its small size, the fish markets and processing enterprises do not depend on domestic aquaculture

[9] Expert knowledge based on catch data, import data and production output of processing companies. Information on catches can be found on the website of the Agriculture and Food Board: https://pta.agri.ee/ettevotjale-tootjale-ja-turustajale/kutseline-kalapuuk/puugistatistika. Information on fishery products and the foreign trade comes from the statistical database of Statistics Estonia, which also sends its data to Eurostat: https://www.stat.ee/en/node.

production[10]. According to the data of Statistics Estonia, the Estonian fish processing industry produced 80 569 tonnes of fishery products in 2021 (78 911 tonnes in 2020). Around half of this quantity was frozen whole salt-water fish (56%), which mainly was exported to Ukraine. The main products in value were fresh or chilled fish fillet, frozen whole salt-water fish, fish fillets in batter or breadcrumbs including fish fingers and prepared or preserved crustaceans, molluscs and other aquatic invertebrates.

Table 8.7.2 Economic performance by company size, Estonia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
From 0 to 9 persons employed										
Enterprises	22	25	33	36	37	31	31	36	46	28%
Production value	4.4		5.8	8.6		9.9	15.1	14.3	15.0	5%
Turnover or gross premiums written	4.7		5.8	8.7		9.6	12.0	14.2	15.2	7%
Value added at factor cost	1.3		1.2	2.0		2.8	4.6	2.6	2.3	-11%
Gross operating surplus	0.5		0.4	0.8		1.6	3.3	1.0	0.5	-50%
From 10 to 19 persons employed										
Enterprises	10	8	10	8	5	10	6	9	11	22%
Production value	13.1		6.6	4.8		8.7	6.2	16.3	9.2	-44%
Turnover or gross premiums written	13.4		6.6	4.7		9.0	10.4	16.6	9.5	-43%
Value added at factor cost	3.1		2.1	1.3		1.9	1.3	2.1	2.4	13%
Gross operating surplus	1.2		0.2	0.2		0.3	0.4	0.7	0.0	-94%
From 20 to 49 persons employed										
Enterprises	13	14	17	15	15	11	15	17	14	-18%
Production value	32.7	33.0	26.9	25.3	25.4	24.4	37.6	60.5	74.0	22%
Turnover or gross premiums written	33.0	34.5	27.2	26.5	27.2	24.6	39.7	62.2	77.4	25%
Value added at factor cost	5.9	6.5	6.3	5.9	6.4	5.3	8.4	12.0	12.0	0%
Gross operating surplus	1.8	1.8	1.7	0.8	1.4	0.8	2.4	4.8	5.4	13%
From 50 to 249 persons employed										
Enterprises	9	10	10	9	9	8	7	8	8	0%
Production value		123.1	123.6	84.5	84.8	85.0	70.6	73.2	75.0	2%
Turnover or gross premiums written		120.6	131.8	86.7	84.9	86.7	74.2	77.6	79.1	2%
Value added at factor cost		17.8	15.7	12.9	13.2	13.3	11.7	13.6	10.1	-26%
Gross operating surplus		2.6	0.1	-0.2	1.9	2.1	1.3	2.2	-1.0	-145%

Source: Eurostat, 2023

The proportion of exports in the total sales revenue of companies whose main business is fish processing accounted for 60% in 2021 (62% in 2020)[11]. The production was exported to 50 countries. The main Estonian export countries for fish and fisheries products in value were Sweden, Ukraine and Finland in 2021.

The overall economic situation in the sector was good in 2021. Both exports and sales to the domestic market increased. Among other things, sales to the hotels, restaurants and catering sector, which had declined in the previous year due to the pandemic, increased. The second half of 2021, however, brought a new concern for operators – rising energy and raw material prices.

Since Ukraine is one of the main export partners for the Estonian fish processing industry, the Russian invasion to Ukraine has a significant impact on it. According to the data of the Statistics

[10] According to Statistics Estonia the production volume of fish farms was only 849 tonnes in 2021 and thus aquaculture was not a significant source of raw material (Estonian fish processing industry produced 80 569 tonnes of fishery products in 2021). https://www.stat.ee/en/node.

[11] Expert assessment based on the knowledge of the sector (financial statements source).

Estonia, the export volume of Estonian origin fish products to Ukraine decreased by 10% in 2022. Also, the military activity continues to keep the prices of production inputs high.

The year 2023 may lead to a shortage of local raw material as fishing quotas for key species (sprat and herring) decrease.

Data coverage and quality

No Estonian data were submitted in the 2023 fish processing sector data call. Estonia decided not to collect data on the fish processing industry under the DCF / EU-MAP from 2017. Thus, DCF data were only available until 2015, as they were submitted in previous data calls.

Hence, the EWG prepared this section based on Eurostat's Structural Business Statistics data (years 2008–2018 and 2021), which are publicly available. 2019 and 2020 data were provided directly by the expert and originate from Statistic Estonia, which is source to Eurostat.

8.8 Finland

8.8.1 Overview

There were 123 fish processing enterprises operating in Finland in 2021 that recorded total turnover of EUR 424 million generating gross value added of EUR 51 million. The processing industry employed 872 FTEs or 1 084 persons. The fish processing industry in Finland is highly concentrated in the sense that 10 companies with the highest turnover produced 87% of the total revenue generated by the industry in 2021. Majority of enterprises are micro and small enterprises that accounted for 26% of the total income of the industry. There were 26 non-main processing enterprises in 2021, which generated EUR 74 million turnover.

The Covid-19 pandemic affected the fish processing sector as the demand for fish by horeca sector decreased in 2020. This affected especially the markets of highly priced domestic fish and many fishermen increased their direct sales. Tightening competition and increasing production costs lowered the gross margins for fish processing companies. The domestic primary production of fish suffered from reduced demand and low prices while the fish retail sector secured good supply of fish for consumers. Due to lowering world market price for salmon and transport issues, there was oversupply for salmon in 2020 and the imports of rainbow trout increased. Norwegians sold some of their overproduction at a low price to Finland. As a result, the fish retail sector increased sales of fresh fish products. Due to the downturn in the fur economy, most of the industrial fish was used in the fish meal plants or for exports.

Table 8.8.1 Overview, Finland, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	147	137	136	134	136	131	119	119	123	3%
≤ 10 employees	125	113	113	112	116	111	100	98	101	3%
11-49 employees	22	19	20	19	16	16	15	16	18	13%
50-249 employees	0	5	3	3	4	4	4	5	4	-20%
≥ 250 employees	0	0	0	0	0	0	0	0	0	0%
Employment (number)										
Total employees	1,010	1,237	1,004	963	966	1,039	1,100	1,166	1,084	-7%
FTE	808	1,072	803	751	760	823	812	993	872	-12%
Indicators										
Turnover (million €)	356	397	300	310	353	396	402	414	424	2%
FTE per enterprise	5.5	7.8	5.9	5.6	5.6	6.3	6.8	8.3	7.1	-15%
Average wage (thousand €)	50.1	39.4	39.6	41.2	40.4	40.8	43.6	40.5	50.7	25%
Unpaid work (%)	4.2	3.6	4.8	4.1	3.4	3.4	2.5	2.7	2.8	3%
Enterprises doing fish processing not as main activity										
Number of entreprises	21	21	20	20	28	28	31	31	26	-16%
Turnover attributed to fish processing (million €)	93.8	93.8	102.6	102.6	133.6	133.6	117.5	117.5	73.7	-37%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

In 2021, fish processing enterprises used 72 thousand tonnes of fish as raw material, 38 thousand tonnes were domestic fish, and 34 thousand tonnes were imported. The demand of salmonids has decreased in the resent years because of the high prices while the demand for domestic fish has remained stable. The year 2021 was difficult due to the lifting of coronavirus restrictions and the rise in salmon prices, and the demand for imported salmonids decreased.

Use of domestic fish dropped dramatically in 2015 due to Russian embargo for EU foodstuff in autumn 2014 as a counter measure to EU sanctions against Russia over Ukraine crisis. The industry has recovered since and was able to produce record high turnover in 2021. The processing of

Norwegian salmon increased in 2021 together with slightly decreasing production of domestic deep frozen Baltic herring and sprat for export. The most important export countries for Finnish processed products were Estonia and Belarus in 2021. Most of the export to Estonia (EUR 20 million) were Baltic herring and rainbow trout. The exports to Belarus were worth of EUR 7 million and it consisted over 70% of rainbow trout.

8.8.2 Economic performance

Finnish processing sector had turnover of EUR 424 million in 2021 with an increase of 2% from previous year's EUR 414 million. At the same time the other income increased 52% to EUR 2.2 million and operating subsidies remained at EUR 0.1 million.

Table 8.8.2 Economic performance indicators, Finland, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	356.0	396.8	299.8	309.8	353.3	395.8	402.4	414.2	424.1	2%
Other income	1.9	1.8	1.9	0.8	1.0	1.5	1.1	1.4	2.2	52%
Operating subsidies	0.2	0.2	0.1	0.1	0.1	0.8	0.1	0.2	0.1	-3%
Total Income	358.1	398.9	301.8	310.7	354.4	398.2	403.6	415.7	426.4	3%
Expenditure (million €)										
Purchase of fish and other raw material for production	248.1	278.2	220.0	229.3	266.0	295.9	301.9	312.0	311.8	0%
Wages and salaries of staff	38.8	40.7	30.3	29.7	29.7	32.5	34.5	39.1	43.0	10%
Imputed value of unpaid labour	1.7	1.5	1.5	1.3	1.0	1.1	0.9	1.1	1.2	14%
Energy costs	4.0	4.3	3.5	2.3	2.4	2.6	2.6	4.7	6.7	43%
Other operational costs	46.8	53.0	33.7	34.8	36.9	42.9	46.3	45.4	56.4	24%
Total production costs	339.4	377.8	289.1	297.3	336.1	375.0	386.2	402.3	419.1	4%
Capital Costs (million €)										
Depreciation of capital	7.4	9.7	5.9	6.5	6.3	6.3	7.4	9.5	8.6	-10%
Financial costs, net	1.0	0.0	1.1	1.2	1.8	0.4	0.8	2.1	1.4	-34%
Capital Value (million €)										
Total value of assets	169.9	161.5	134.2	139.0	147.8	155.2	172.8	181.8	187.3	3%
Net Investments	3.3	5.9	9.3	11.3	2.7	8.1	30.6	22.5	7.9	-65%
Subsidies on investments				3.5	0.1	0.5	0.9	0.2	0.2	7%
Debt	112.9	100.6	89.0	89.5	93.7	97.3	111.2	119.0	130.9	10%
Economic performance (million €)										
Gross Value Added	59.0	63.1	44.4	44.2	48.9	56.0	52.6	53.5	51.4	-4%
Operating Cash Flow	18.7	21.1	12.7	13.4	18.3	23.2	17.4	13.5	7.3	-46%
Earning before interest and tax	11.3	11.4	6.8	6.9	12.1	17.0	10.0	4.0	-1.2	-131%
Net Profit	10.3	11.4	5.7	5.7	10.2	16.6	9.2	1.8	-2.6	-244%
Productivity and performance Indicators										
Labour productivity (thousand €)	73.1	58.9	55.3	58.8	64.4	68.0	64.8	53.9	58.9	9%
Capital productivity (%)	34.7	39.1	33.1	31.8	33.1	36.1	30.4	29.4	27.4	-7%
GVA margin (%)	16.5	15.8	14.7	14.2	13.8	14.1	13.0	12.9	12.1	-6%
EBIT margin (%)	3.2	2.9	2.3	2.2	3.4	4.3	2.5	1.0	-0.3	-131%
Net profit margin (%)	2.9	2.8	1.9	1.8	2.9	4.2	2.3	0.4	-0.6	-241%
Return on Investment (%)	6.7	7.1	5.1	5.0	8.2	10.9	5.8	2.2	-0.7	-130%
Financial position (%)	33.5	37.7	33.7	35.6	36.6	37.3	35.7	34.5	30.1	-13%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Total costs follow the total income closely. The main reason is that the raw material makes up majority of the costs, some 74% of the total operating costs corresponding to EUR 312 million in 2021. Other operational costs, wages and salaries of staff are other main cost items in the sector. All costs increased in 2021 except for the raw material. Energy costs rose the most, 43% from year

2020, which had a weakening impact to the profitability, although the turnover improved. The gross value added decreased by 4%, operating cash flow fell by 46%, and EBIT turned to negative falling by 131% and net profit by 244%. The processing sector was making around EUR 51 million gross value added and EUR -2.6 million net losses in 2021.

The gross value added of processing industry increased steadily up to EUR 63 million in 2014 but dropped with turnover in 2015 by 30%. The profitability improved until 2018 but decreased in 2019 due to increased production costs and the production costs have remained high ever since. In general, the sector is operating with low net profit margin: an average 3% of the total income. The processing sector made high investments in 2019 and 2020. Net investment in 2021 were EUR 8 million, 65% less than in the previous year. At the same time, the debt increased 10%, and the financial position weakened. The return on investments were record high in 2018 but fell sharply in 2019 to 5.8% and was only -0.7% in 2021.

8.8.3 Breakdown by company size

The Finnish fish processing sector largely consists of micro enterprises employing less than 10 persons. There were 101 micro enterprises in the sector in 2021 and they amounted to 82% of all the main activity enterprises in the industry. However, these micro enterprises contributed only 7% of the total income of the sector. The 4 medium-sized enterprises accounted for three quarters of the total income and 18 small enterprises 19%. The small and medium sized enterprises dominated the sector also in terms of employment.

The Russian food embargo hit heavily the medium sized enterprises and the turnover almost halved in 2015. After that the turnover has increased rapidly and the medium size enterprises have had the multiple total income compared to the small enterprises in the recent years.

Table 8.8.3 Economic performance by company size, Finland, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	44.2	33.3	28.7	36.0	40.6	38.6	34.1	30.1	29.5	-2%
Total production costs	43.8	32.5	28.3	35.0	38.5	36.8	32.6	29.4	28.4	-3%
Gross Value Added	9.0	7.2	6.3	6.7	7.4	7.0	6.4	6.2	7.0	14%
Operating Cash Flow	0.4	0.8	0.4	1.0	2.0	1.7	1.5	0.7	1.1	62%
Earning before interest and tax	-0.8	-0.4	-0.6	0.1	1.2	0.9	0.8	0.0	0.3	-2187%
Net Profit	-0.9	-0.7	-0.8	-0.1	1.0	0.6	0.7	-0.7	0.1	-116%
between 11 and 49 employees										
Total Income	313.9	134.1	144.2	121.5	111.4	110.0	108.8	57.2	83.0	45%
Total production costs	295.6	127.8	137.3	116.2	105.5	101.7	100.5	53.1	76.4	44%
Gross Value Added	50.0	19.0	22.1	19.3	16.8	18.4	18.7	14.0	19.5	40%
Operating Cash Flow	18.3	6.3	6.9	5.3	5.9	8.3	8.3	4.1	6.6	61%
Earning before interest and tax	12.2	3.4	4.2	2.7	3.8	6.2	6.1	1.7	3.8	124%
Net Profit	11.2	3.0	3.3	2.2	3.4	5.7	5.8	1.4	3.6	156%
between 50 and 249 employees										
Total Income		231.4	128.9	153.2	202.4	249.6	260.7	328.5	313.9	-4%
Total production costs		217.4	123.5	146.1	192.0	236.4	253.2	319.8	314.3	-2%
Gross Value Added		36.9	16.0	18.2	24.7	30.6	27.5	33.4	24.8	-26%
Operating Cash Flow		14.0	5.4	7.0	10.4	13.2	7.5	8.7	-0.4	-105%
Earning before interest and tax		8.4	3.3	4.1	7.1	9.9	3.1	2.3	-5.3	-335%
Net Profit		9.1	3.3	3.6	5.8	10.3	2.7	1.2	-6.3	-650%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

In 2021, the small enterprises had the best profitability of the sector with net profit of EUR 3.6 million. The medium size enterprises were the most profitable group of firms in 2016-2018, but

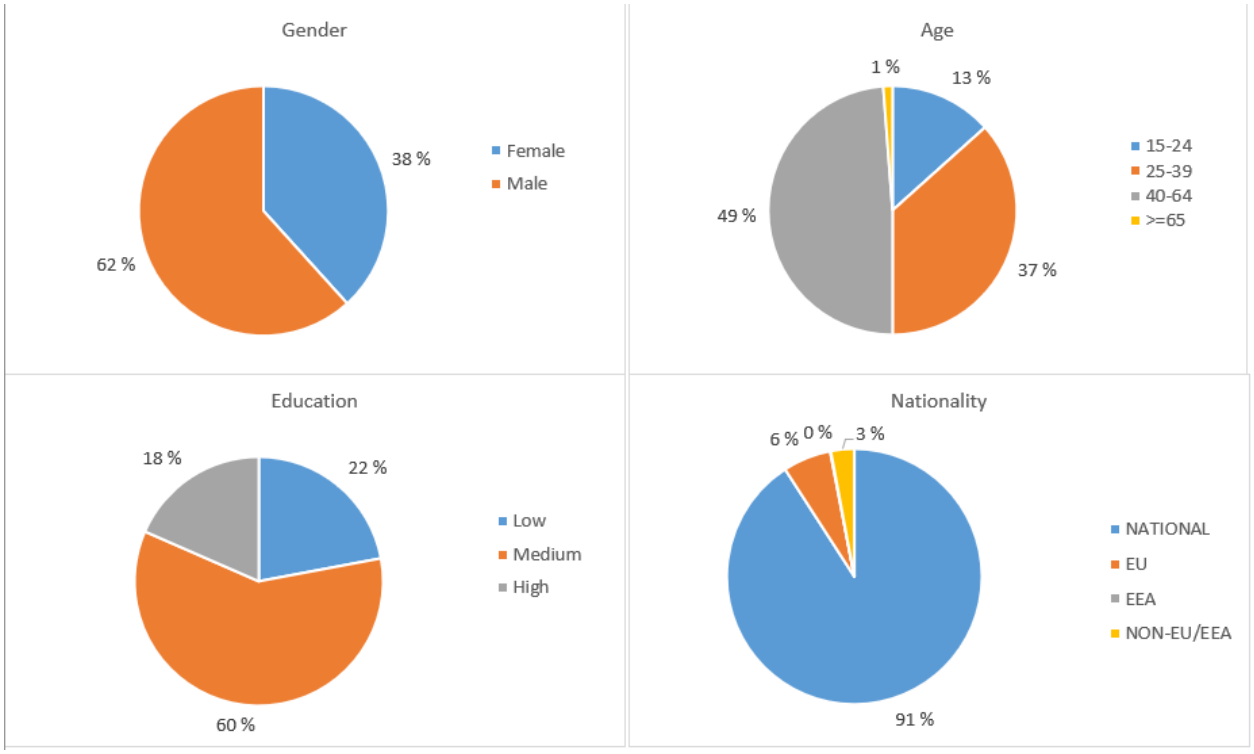
these companies have not been able to realize the returns in the net profit due to the high production costs and the profitability has weakened in the recent years. Medium size enterprises had negative operating cash flow and they made more than EUR 6 million losses in 2021. Micro enterprises had slightly smaller income and total production costs in 2021 than in the previous year, and they increased their net profit from losses in 2020 to EUR 0.1 million in profit.

8.8.4 Socio-demographic structure

The employment of the processing industry was increasing from 2009 until 2014 both in numbers of employees and full time equivalent. In 2015 and 2016, the employment measured in FTE clearly decreased. In 2020, the employment was record high 993, but it decreased 12% to 872 full time equivalent in 2021. An average processing enterprise in 2021 employed 7.1 FTEs with an average wage (including value of unpaid labour) of EUR 50.7 thousand per employee. Labour productivity rose by 9% to EUR 58.9 thousand.

Almost two thirds of employees in the processing sector are male, mostly at the age of 40-64 years. Over half (60%) of the employees have medium level education and 91% of the employees are Finnish citizens. Small share of the labour force comes from other EU member states (6%) or from non-EU/EEA countries (3%).

Figure 8.8.1 Socio-demographic characteristics, Finland, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.8.5 Raw materials

The main species used in Finnish fish processing are salmon, Baltic herring and rainbow trout according to the fish processing statistics by Natural Resources Institute Finland (Luke). The Finnish industry processed also European whitefish, herring, vendace and various other freshwater fish species.

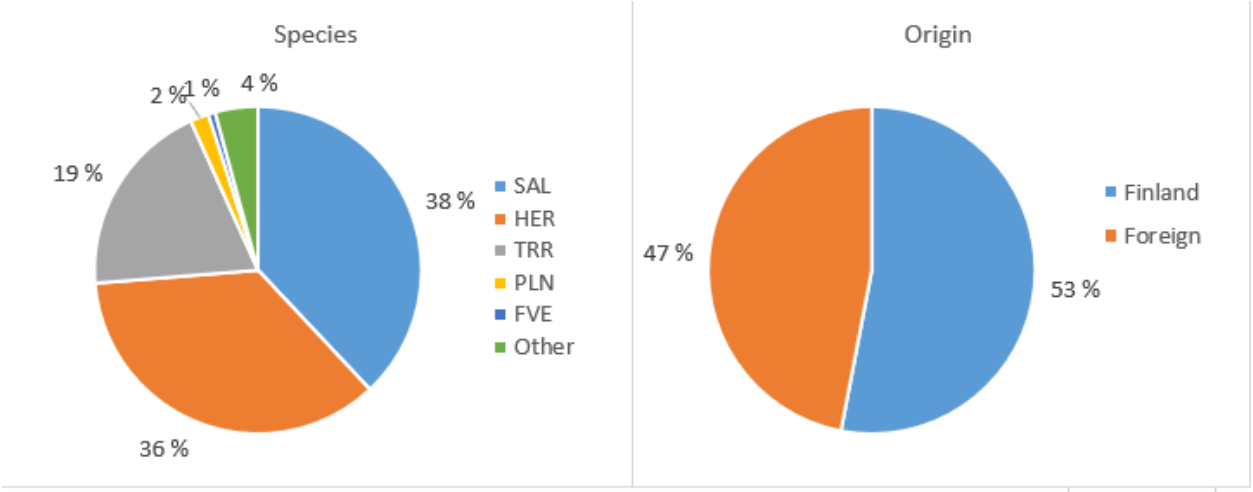
Baltic herring has traditionally been the most important species in Finnish fish processing in terms of weight. However, in 2021 the production of salmon overrode the Baltic herring production. Salmon made up 38% and Baltic herring 36% of the raw material used for processing. The domestic consumption of herring has decreased significantly from the past decades, and salmon has become the most important species in terms of value. Together with rainbow trout they account for almost 60% of the total weight of fish produced in 2021. The most important market for herring was Russia

until the Russian embargo. Nowadays most of the processed herring and sprat are exported to Estonia.

More than half of the raw material used for fish processing in Finland is domestic fish and 47% is imported, mainly Norwegian salmon. In 2021, deep frozen Baltic herring and sprat were the most important processed products in terms of weight. The other most important products were fresh Norwegian salmon fillet, smoked salmon and fresh domestic rainbow trout fillet. Production of Norwegian salmon together with domestic rainbow trout reached 36 thousand tonnes in 2021.

According to the fish market review released by Natural Resources Institute Finland (Luke), the production of domestic rainbow trout is not enough for the domestic needs and the imports of fresh rainbow trout from Sweden have been vital for meeting the demand. In the recent years imports from other countries have increased as well. While the price of salmon has been high decreasing the domestic demand for salmonids, the interest in processing Baltic herring for human consumption in the domestic markets has increased. Production capacity for processing Baltic herring has grown in Finland, and the domestic consumption of Baltic herring rose in 2019 and 2020 but decreased in 2021 to 0.29 kg per person.

Figure 8.8.2 Main raw material used by species and origin, Finland, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.8.6 Trends, drivers and outlook

The Finnish fish processing sector has been increasingly concentrated. The ten biggest companies in the sector in terms of turnover made up 87% of the total revenues in 2021. The competitiveness and performance of the sector is mostly connected to the price developments of fish, mainly Baltic herring, rainbow trout and salmon, but also developments of the operational costs play increasingly an important role. Salmon prices continued to remain high in 2021 impacting the outlook for the Finnish processing. The price of Baltic herring for processing was also at the highest level in the 21st century.

According to the fish market review by Luke, the war in Ukraine, which began in February 2022, accelerated food price increases as higher costs in the food supply chain were passed on to consumer prices. Problems in the international salmon trade and insufficient supply were reflected in the Finnish fish market. The price of fresh salmon skyrocketed. Within a few months, the price rose by more than 30 percent. Exceptional increases in food prices, lower consumer purchasing power and higher fish prices weakened the competitive position of fish.

In 2022, the value of fresh fish sales decreased by 3 percent and sales volume by more than 25 percent. Fish processing companies and fish wholesalers have had to adapt to the rapid collapse in demand for their main fish product salmon. The decrease in production volume led to an increase in unit costs in many fish processing enterprises. At the same time, value of raw material and other operational costs increased due to the war. The prices of processed products increased more slowly

that those of fresh fish and companies stockpiling raw material were able to supply processed products to retail trade without any interruption. However, the fish product range in retail decreased.

According to the preliminary economic results for 2022 by Natural Resources Institute Finland, the turnover for fish processing sector was EUR 432 million with an increase of 2%. The micro and small enterprises were able to increase their turnover while the medium size enterprises had lower turnover than in 2021. At the same time, the production costs increased in the sector in general. The personnel costs decreased by 1% while energy costs increased by 9% and raw material costs by 7%. These increases in production costs affect the profitability of the sector negatively and weakened the net result in 2022.

In 2016, the first fishmeal plant started in operation with estimated annual production of 30-40 thousand tonnes Baltic herring as raw material for fishmeal and oil that will be further processed as fish feed for fish farming. Currently, the fishmeal production accounts for around 40% of Finnish Baltic herring catches. The main markets for herring and sprat in 2022 was the fishmeal industry. The prices of fishmeal and fish oil rose due to the war.

The continuation of the war in 2023, the slow development of the Finnish economy and consumer caution weaken the outlook for the fish market, according to the fish market review by Luke. Fish processing companies are cutting costs, reducing their product range and focusing on producing volume products. The high price of salmon and other fish raw materials in 2023 will affect the product portfolio of the processing industry. If the world market price of salmon rises again or the availability of salmon becomes scarcer, it will again have a direct impact on the fish market, causing further problems.

The new governmental programme promoting domestic fish aims to ambitiously double fish consumption and domestic fish production in Finland by 2027. This would require considerably higher utilization of Baltic herring for processing as food fish. Domestic consumption of Baltic herring rose in 2019 and 2020 in Finland but declined again in 2021. More companies have started filleting Baltic herring, the production capacity is growing, and new product innovations based on Baltic herring are taking place to an increasing extent. There is also a growing demand for the domestic wild fish. The supply, however, has been limited for the past years. The Baltic herring stock in Bothnian Sea has been in a weaker condition than before, quotas have been declining and fishermen have restricted their catches. European Commission proposed a total ban on commercial herring fishing in the Baltic Sea in 2024. However, the EU Agriculture and Fisheries Council decided to continue targeted herring fishing in the Baltic Sea in accordance with scientific advice, but with reasonable quotas for 2024.

8.8.7 Data coverage and quality

The economic data is compiled by combining data from the structural business and financial statement statistics of Statistic Finland (SF) and production survey data from the Natural Resources Institute Finland (Luke). Financial data covers all enterprises having fish processing as their main activity in Business Register of Statistics Finland in 2021. Luke carries out a survey on production of processed fish every second year. The latest information available for the report is for 2021. The production survey is carried out as a stratified survey with a target population including all enterprises operating in fish processing, including also enterprises that do not have fish processing as their main activity.

8.9 France

8.9.1 Overview

The fish processing industry is a small component of the food processing sector in France: its turnover accounts for approximately 2% of the turnover of the whole food processing industry. In 2020, the French fish processing sector encompasses about 369 enterprises and generates a total turnover of EUR 4.8 billion. However, the analysis of recent structural trends and current economic performances is impaired by the continuous degradation of the data provided by France regarding this industry in the recent years (see the "data issues" section at the end of this chapter). Two sources may be used to gather data on the French fish processing industry: the results of the survey implemented by FranceAgriMer provided in response to the DCF and the data provided by the French national statistical services to Eurostat. Historically, the DCF data were more complete and more reliable, however the quality of the data degraded continuously over time: no data were transmitted for the years 2016, 2017, 2021 and 2023, and the 2018 data are incomplete. Eurostat data are more consistent over time, nevertheless three limitations have to be highlighted: i) methodological breaks in time series occurred in the years 2014, 2015 and 2017; ii) 2018 data are incomplete; iii) the data for the year 2016 are inconsistent, especially with respect to the number of firms, even though no methodological changes are reported this year. Due to these numerous information gaps, the present chapter will rely on Eurostat data mainly for analysing structural trends, including by enterprise size.

Although the number of enterprises increased slightly from 353 to 369 between 2020 and 2021 (+5%), the French fish processing industry employed fewer persons and fewer employees (12 604 jobs). However, the number of full-time equivalents recovered its level of 2019 with 11 746 FTEs in 2021. The total income (+2%), production value (+3%) and gross value added (+10%), had increased between 2020 and 2021.

Table 8.9.1 Overview, France, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ(2020-21)
Structure (number)										
Total enterprises	351	327	380	495	311	316	333	353	369	5%
Total persons employed	13,324	12,542	12,122	13,694	12,054	13,565	12,958	12,824	12,756	-1%
Unpaid labour	42	62	49	53	51	41	43	47	152	223%
FTE	11,661	10,954	11,218	12,665	11,021	12,255	11,769	11,119	11,746	6%
Income, expenditure and investments (million €)										
Production value	3,172.1	3,195.1	3,302.9	3,775.0	3,695.6		4,123.3	3,984.9	4,104.1	3%
Turnover										
Total income	3,646.1	3,511.5	3,676.8	4,172.5	4,455.1	*4,552.8*	4,823.4	4,792.6	4,907.3	2%
Total purchases of goods and services	2,999.4	2,896.4	2,995.2	3,541.0	3,732.0	*3,793.4*	3,998.8	4,023.3	4,066.6	1%
Personnel costs	491.0	470.0	477.9	540.2	528.6		601.8	560.3		
Gross investment in tangible goods	105.6	98.3	97.1	92.1	104.6	126.4	171.4	137.8	163.4	19%
Economic performance (million €)										
Gross Value Added	603.5	599.0	625.1	651.9	699.1		777.8	760.6	836.0	10%
Gross profit	112.5	129.0	147.2	111.6	170.4		176.1	200.3	247.5	24%

*Source: EUROSTAT, 2023. *Data for 2018 were incomplete and some indicators (in italics) have been estimated (see section 7 for details).*

The prepared dishes, which had already been in second place since 2017, occupy since 2020 the leading position within the industry with a sold production (Eurostat data) of 119 000 tonnes in 2021.

Based on EUROSTAT data between 2019 and 2020, the French fish processing industry production experienced a decrease by 3% in value. The production in volume between 2020 and 2021 decreased by 11.6%.

Most of the GVA and profits were generated by the companies with 250 or more persons employed, followed by the companies with from 50 to 249 persons employed.

Table 8.9.2 Economic performance by company size, France, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
From 0 to 9 persons employed										
Enterprises	186.0	213.0	240.0	308.0	213.0	210.0	222.0	236.0	255.0	8%
Production value	72.1	187.5	130.5	127.7	108.4		107.2	117.5	110.1	-6%
Turnover or gross premiums written	125.8	232.8	172.2	155.1	129.6		127.6	131.0	124.2	-5%
Value added at factor cost	19.3	34.0	31.5	28.1	21.8		27.6	20.3	21.5	6%
Gross operating surplus	2.2	- 0.1	9.4	- 1.0	1.1		6.3	0.6	5.9	888%
From 10 to 19 persons employed										
Enterprises	65.0	40.0	45.0	60.0	35.0	38.0	36.0	36.0	41.0	14%
Production value	268.8	202.0	195.2	156.4	164.2		115.6	98.1	118.6	21%
Turnover or gross premiums written	295.2	222.4	223.3	197.3	190.2		127.6	116.0	136.0	17%
Value added at factor cost	46.7	33.5	34.9	33.1	29.3		25.9	25.8	30.9	20%
Gross operating surplus	8.6	5.6	7.9	4.5	1.7		2.8	7.1	9.2	29%
From 20 to 49 persons employed										
Enterprises	59.0	45.0	55.0	71.0	34.0	35.0	42.0	44.0	42.0	-5%
Production value	480.9	417.4	439.3	508.9	265.3		349.5	353.8	346.7	-2%
Turnover or gross premiums written	576.7	541.0	550.4	616.7	296.8		437.6	412.5	407.5	-1%
Value added at factor cost	97.8	85.0	92.1	106.6	58.0		75.3	80.2	89.5	12%
Gross operating surplus	24.8	16.4	24.5	35.5	16.6		14.8	26.5	34.6	31%
From 50 to 249 persons employed										
Enterprises	30.0	20.0	28.0	40.0	20.0	23.0	25.0	28.0	20.0	-29%
Production value	900.1	814.2	883.4	1,159.0	795.1	1,021.7	1,104.9	1,114.4	1,019.6	-9%
Turnover or gross premiums written	1,018.9	885.5	940.9	1,254.6	938.1	1,144.1	1,236.6	1,261.2	1,092.4	-13%
Value added at factor cost	145.5	133.9	147.2	153.3	146.9	162.7	175.9	168.5	157.5	-7%
Gross operating surplus	12.3	27.1	24.8	11.3	44.3	39.3	42.5	39.8	50.6	27%
250 persons employed or more										
Enterprises	12.0	9.0	11.0	15.0	10.0	10.0	8.0	9.0	11.0	22%
Production value	1,450.3	1,574.0	1,654.4	1,823.0	2,362.5		2,446.2	2,301.2	2,509.0	9%
Turnover or gross premiums written	1,629.6	1,629.9	1,790.1	1,948.9	2,900.4		2,894.0	2,871.9	3,147.3	10%
Value added at factor cost	294.1	312.6	319.3	330.8	442.9		473.2	465.8	536.5	15%
Gross operating surplus	64.7	80.1	80.6	61.2	106.7		109.7	126.4	147.2	16%

Source: Eurostat, 2023

The Covid had an important effect but variable among the fish markets (larger decrease in volumes for Brittany, and Atlantic coast harbours) in term of raw material provision. France encountered a change in customer habits during the Covid-crisis with a reinforcement of the constant increase for pre-packed fish fillet (+22% in volume, +23% in value in 2020, and 8% in volume and 6% in value for 2021). There was a positive effect on the purchase of fresh fish, although situation varies among species (+42% for salmon, whereas sales of cod, hake, saithe or monkfish have decreased). A major increase for shrimps (54% in volume for pre-packed, +21% in volume for bulk cooked shrimps in 2020), however mean price decreased in the meanwhile. Nephrops, crabs and scallops also gained in sales, as well as fresh mussels, trout, dorado, mackerel, seabass and whiting in a slighter importance. After the Covid-19, the customers tent to continue buying more sea products than before the crisis, however they privilege fresh products. They tend to be more interested by origin, quality, traceability and animal welfare while buy seafood. The development of direct or

semi direct selling system (via mobile or online application) is also a consequence of the changes in the French customer habits building a relationship between producer and consumer.

8.9.2 Data coverage and quality

France data coverage and quality is deteriorating for various reasons.

No French data were submitted in the 2021 fish processing sector data call. France decided not to collect data on the fish processing industry under the DCF / EU-MAP from 2022. Thus, DCF data were only available until 2018, as they were submitted in previous data calls.

Hence, the EWG prepared this section based on Eurostat's Structural Business Statistics data, which are publicly available.

Global production data by types of products were usually compiled by the Ministry for Food and Agriculture for the PRODCOM database using primary data from professional sources are now provided by the French national statistics service based on a result of an annual survey. Products of the fish processing industry are covered by NACE rev 2 code 10.20Z (processing and preserving of fish, crustaceans and molluscs) and part of NACE rev 2 code 10.85Z *i.e.* NAF code 10.85.12.00 (prepared dishes with fish, crustaceans and molluscs). Unfortunately, no data are available in the PRODCOM database for smoked salmon in 2019: smoked salmon being one of the most important product categories of the French fish processing industry, the unavailability of these data prevents any comparative analysis of production trends between the main sub-sectors of the industry.

For the years 2017 and 2018, FranceAgriMer seems to have restricted the perimeter of the survey to the enterprises affiliated to the 10.20Z industry segment only, while the initial survey was based on an exhaustive list of enterprises gathered from various sources, including sanitary licences and complementary NACE codes. However, the population of enterprises covered by the DCF survey appeared much lower than the population of the same NACE code recorded by the SBS data of Eurostat for 2017 and 2018. In addition, despite this restrained scope of the survey, the data quality continued to degrade. During the present expert meeting, the data provided by France were missing for the years 2016, 2017 and 2019, and incomplete for 2018. Due to a continuous degradation of the reliability of the data obtained, no survey has been implemented by FranceAgriMer after 2018.

8.10 Germany

8.10.1 Overview

In 2021, the German processing sector consisted of 210 enterprises with fish processing as their main activity. The segment with the highest number of enterprises (up to 10 employees) only generated 2% of the industry's turnover. In contrast, the small number of large enterprises with more than 250 employees (7 enterprises) concentrated 47% of the employment and 60% of the sectors turnover. The 20 enterprises with 50-249 employees accounted for 25% of turnover and 26% for employment, while the segment 10-49 employees added up to 22% of the employment and 13% of the turnover.

Due to this industry structure and given that under the Structural Business Statistic Regulation data is already collected for enterprises with 20 and more employees, Germany presents economic data only for the aggregated segment of 20 and more employees.

The total number of processing enterprises in Germany has decreased by 25% since the beginning of the series. During 2020-2021 the total number of enterprises increased by 1%. The number of firms with more than 250 employees has been stable for the last years, except for 2020, where the number decreased by 5%. Whereas in 2021 it increased again to the original number (7 enterprises). There was an increase of 10% of firms with 11-49 employees in 2019 reaching the highest number (65 enterprises) in the series so far. In absolute terms, the decrease of microenterprises was the strongest, as they have lost a total of 79 enterprises since the beginning of the series – 19 between 2018 and2019 and additional 10 between 2019 and 2020. While there was a slight increase of 4 enterprises from 2020 to 2021, since 2008 the overall number has decreased by 40%.

Table 8.10.1 Overview, Germany, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	253	258	248	247	244	223	210	208	210	1%
≤ 10 employees	176	178	164	157	154	137	118	108	112	4%
11-49 employees	54	56	54	60	61	59	65	73	71	-3%
50-249 employees	15	16	22	23	22	20	20	22	20	-9%
≥ 250 employees	8	8	8	7	7	7	7	5	7	40%
Employment (number)										
Total employees	6,751	6,561	6,665	6,255	6,141	6,653	6,633	6,095	6,143	1%
FTE	6,476	6,251	6,373	5,876	5,885	6,324	6,305	5,509	5,556	1%
Indicators										0%
Turnover (million €)	2,060	1,983	2,091	2,080	2,173	2,130	2,196	2,309	1,906	-17%
FTE per enterprise	25.6	24.2	25.7	23.8	24.1	28.4	30.0	26.5	26.5	0%
Average wage (thousand €)	36.0	38.4	37.6	39.7	40.8	40.4	41.5	48.2	48.5	0%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity										
Number of entreprises								202	202	0%
Turnover attributed to fish processing (million €)								361.5	307.7	-15%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The number of employees reported for enterprises with more than 20 employees remained stable during the last years.

In contrast to the relatively small size of the German fleet in the European context, the German processing industry plays a stronger role in the EU, ranked 5th in terms of volume of processing. In some key sub-segments of the industry, such as fish finger production, Germany is a player of worldwide relevance. Regarding geographical distribution, the highest turnover and employment

from processing is concentrated across the North Sea coast: in Bremerhaven, three out of five top employers are fish processing industries[12] and in Cuxhaven fish processing is one of the main economic sectors[13].

8.10.2 Economic performance

After a small decrease in 2018, the turnover of the German processing industry has increased by 5% between 2018 and 2020 and with EUR 2 309 million the highest value in ten years was reached. But in 2021 the turnover decreased by 17% (due to changes in the methodology, this value should be handled with caution). Since the beginning of the series the value of other income has fluctuated greatly between EUR 3 and 76 million (due to changes in the methodology, the value for 2021 should be handled with caution) (see Table 8.10.2).

Table 8.10.2 Economic performance indicators, Germany, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	2,059.7	1,982.9	2,091.4	2,079.8	2,172.6	2,129.5	2,195.6	2,309.0	1,905.8	-17%
Other income	6.2	9.7	16.1	7.2	7.5	20.4	76.2	3.3	445.2	13429%
Operating subsidies	0.0	0.0	0.0	0.1	0.1	4.6	-0.4	2.1	0.0	-100%
Total Income	2,066.0	1,992.6	2,107.4	2,087.0	2,180.2	2,154.5	2,271.4	2,314.4	2,351.1	2%
Expenditure (million €)										
Purchase of fish and other raw material for production	1,260.3	1,212.3	1,237.2	1,281.6	1,359.3	1,300.2	1,384.7	1,381.9	1,134.2	-18%
Wages and salaries of staff	233.4	239.8	239.4	233.4	240.1	255.7	261.3	265.8	269.2	1%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	47.0	45.8	44.4	35.2	34.6	39.0	36.7	37.0	39.4	7%
Other operational costs	413.2	427.7	479.1	434.6	434.9	420.4	410.4	452.9	365.5	-19%
Total production costs	1,954.0	1,925.6	2,000.1	1,984.8	2,069.0	2,015.3	2,093.1	2,137.6	1,808.3	-15%
Capital Costs (million €)										
Depreciation of capital	41.0	32.9	37.4	32.8	35.9	37.3	38.3	57.6	20.3	-65%
Financial costs, net	11.9	10.1	8.1	4.5	4.0	3.8	4.0	-7.1	-12.2	73%
Capital Value (million €)										
Total value of assets	952.7	915.5	932.5	982.9	961.1	1,105.7	1,167.5	1,063.4	1,060.0	0%
Net Investments	25.7	25.0	29.1	42.7	33.5	59.9	51.5	49.8	41.2	-17%
Subsidies on investments				0.6	1.5	0.3	0.8	0.0	0.5	28009%
Debt	802.7	765.5	746.8	541.8	431.8	449.3	519.1	448.1	420.0	-6%
Economic performance (million €)										
Gross Value Added	345.4	306.8	346.7	335.6	351.2	390.3	440.1	440.5	812.0	84%
Operating Cash Flow	112.0	67.0	107.4	102.2	111.2	139.2	178.3	176.8	542.8	207%
Earning before interest and tax	71.0	34.1	70.0	69.3	75.3	101.9	140.0	119.2	522.4	338%
Net Profit	59.1	24.1	61.9	64.8	71.3	98.1	136.1	126.3	534.7	323%
Productivity and performance Indicators										
Labour productivity (thousand €)	53.3	49.1	54.4	57.1	59.7	61.7	69.8	80.0	146.1	83%
Capital productivity (%)	36.3	33.5	37.2	34.1	36.5	35.3	37.7	41.4	76.6	
GVA margin (%)	16.7	15.4	16.5	16.1	16.1	18.2	19.4	19.0	34.5	
EBIT margin (%)	3.4	1.7	3.3	3.3	3.5	4.7	6.2	5.1	22.2	
Net profit margin (%)	2.9	1.2	2.9	3.1	3.3	4.6	6.0	5.5	22.7	
Return on Investment (%)	7.5	3.7	7.5	7.1	7.8	9.2	12.0	11.2	49.3	
Financial position (%)	15.7	16.4	19.9	44.9	55.1	59.4	55.5	57.9	60.4	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

[12] Bremerhaven Gesellschaft für Investitionsförderung und Stadtentwicklung mbH (2019): Daten und Fakten 2019 https://www.bis-bremerhaven.de/sixcms/media.php/631/DatenFakten_2019.pdf (last retrieved, February 21, 2022).

[13] Agentur für Wirtschaftsforderung Cuxhaven, Ernährungs- und Fischwirtschaft (2020): https://www.afw-cuxhaven.de/assets/Uploads/Broschuere-Fischwirtschaft-Cuxhaven-2020.pdf (last retrieved, October 27, 2023).

The costs for raw material have remained stable in 2020 and decreased by 18% in 2021[14]. Wages increased by 1% in 2021 and by 15% compared to 2016. Energy costs increased by 7% in 2021. Other operational costs increased by 10% in 2020 and decreased by 19%in 2021. This results in an increase of total production costs by 2% in 2020 (+4% compared to 2019), but the calculated decrease by 15% in 2021 should be handled with caution due to the uncertainties in costs for raw material and other operational costs.

The costs for depreciation of capital further increased by 50% in 2020 and decreased by 19% in 2021.

Uncertainties in costs for raw material and other operational costs in 2021 affect the analysis of the remaining variables, making the comparison superfluous. The focus will therefore be on the performance of the fish processing industry in 2020.

Against this backdrop, the gross value added of the German processing industry remained stable at EUR 440 million in 2020 after a previous increase by 11% in 2018 making it 25% higher than 2017. Net profit decreased by 7% in 2020 after having risen by 39% in 2019.

After an increase of net profit since 2016 and of earning before interests and tax since 2014, the net profit decreased by 7% and the earning before interests and tax decreased by 15%. The operating cash flow stayed relatively stable at EUR 177 million after continuously increasing throughout the previous years. Which means that all indicators of economic performance were at their highest level in 2019 since the beginning of the time series and from there either decreased or stayed stable.

8.10.3 Socio-demographic structure

The socio-demographic data for the German processing sector was only collected for the year 2020 and refers to the total population of firms without the focus on enterprises with 20 and more employees used for the economic data. It is based on data from the Federal Employment Agency that registers all persons employed belonging to the social security scheme in Germany together with the additional characteristics gender and nationality (domestic, EU and Non-EU). The variables employment by level of education and employment by age were collected during a survey and projected to the sector level using the available census data.

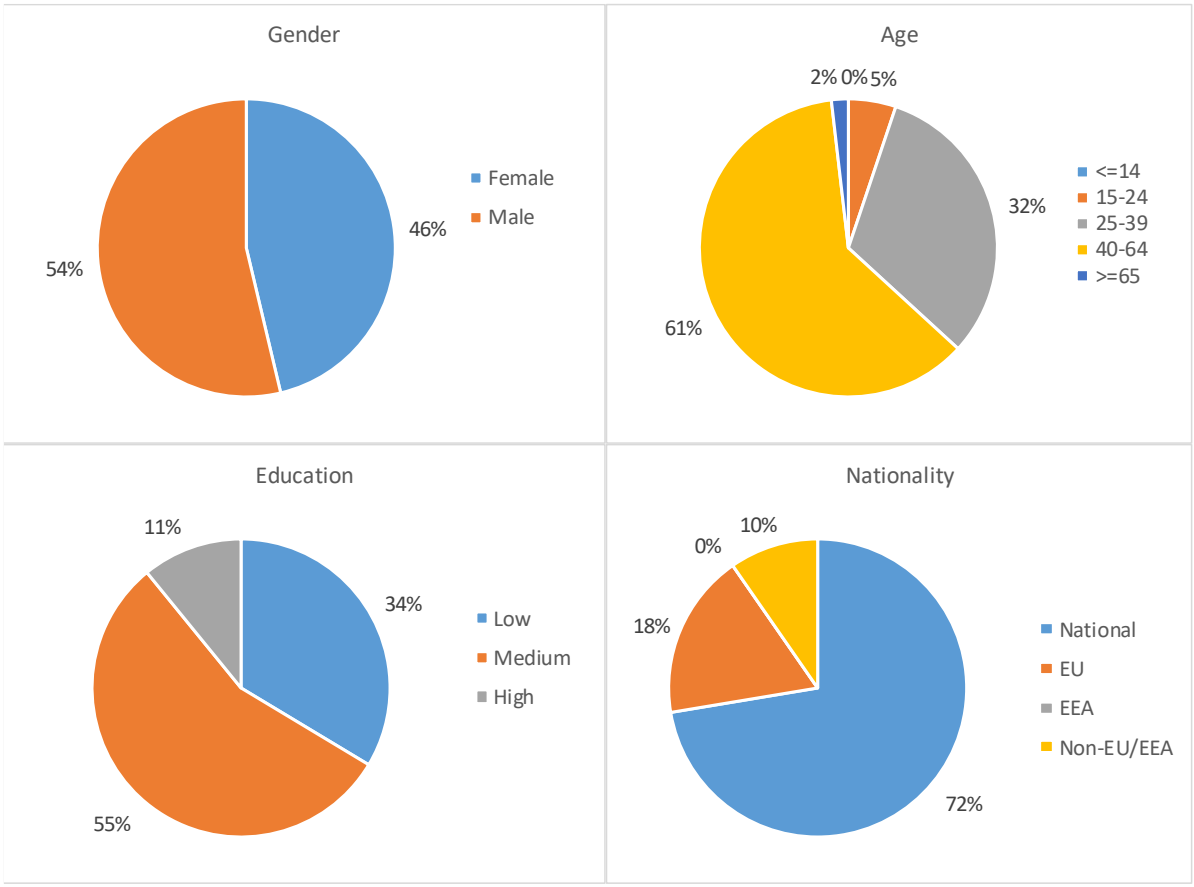
Looking at the total of workers within the German processing sector from a gender perspective it can be said that the composition is almost balanced with a slight majority being male (54%, see Figure 5.10.1 Gender).

The categories used during the survey to determine the age of the workforce were <=14, 15-24, 25-39, 40-64 and >= 65 years of age. Most workers (61%) were between 40 to 64 years old (see Figure 5.10.1 Age). The second largest age group was that of 25-39-year-olds (32%), followed by the younger generation (15-24 years) that accounted for only 5% of the total workforce. While no worker was younger than 14 years old, 2% were older than 65 years. The following specifications can be given regarding the gender distribution of the employees: the female workforce is slightly older in average than the male. While 39% of the male workforce is younger than 40 years old, this is the case for only 34% of the female employees.

The majority of workers (55%) served an apprenticeship or graduated from high school. The education level of this group is categorized as "medium" (see Figure 5.10.1 Education). Another 34% obtained a secondary education or no qualification and is shown as "low" education level in Figure 8.10.1. The remaining 11% of the employees have a "high" education level, which includes all kinds of university studies, but also professional qualifications. The distribution of gender is almost balanced with slightly more females having a "low" education level (35% of the female workforce compared to 32% of the male workforce) and slightly more males obtaining a "high" education (12% of the male workforce compared to 10% of the female workforce).

[14] Due to changes in the methodology, these changes/values should be handled with caution.

Figure 8.10.1 Socio-demographic characteristics, Germany, 2020



Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Finally, the nationality of the workforce is split between national, EU, EEA and non-EU/EEA workers, with a clear majority of national workers (72%). EU workers represent 18% of the German workforce and workers coming from outside the EU the remaining 10%. The amount of EEA workers is negligible. The distribution of gender by nationality is almost equal in all nationality groups.

8.10.4 Raw materials

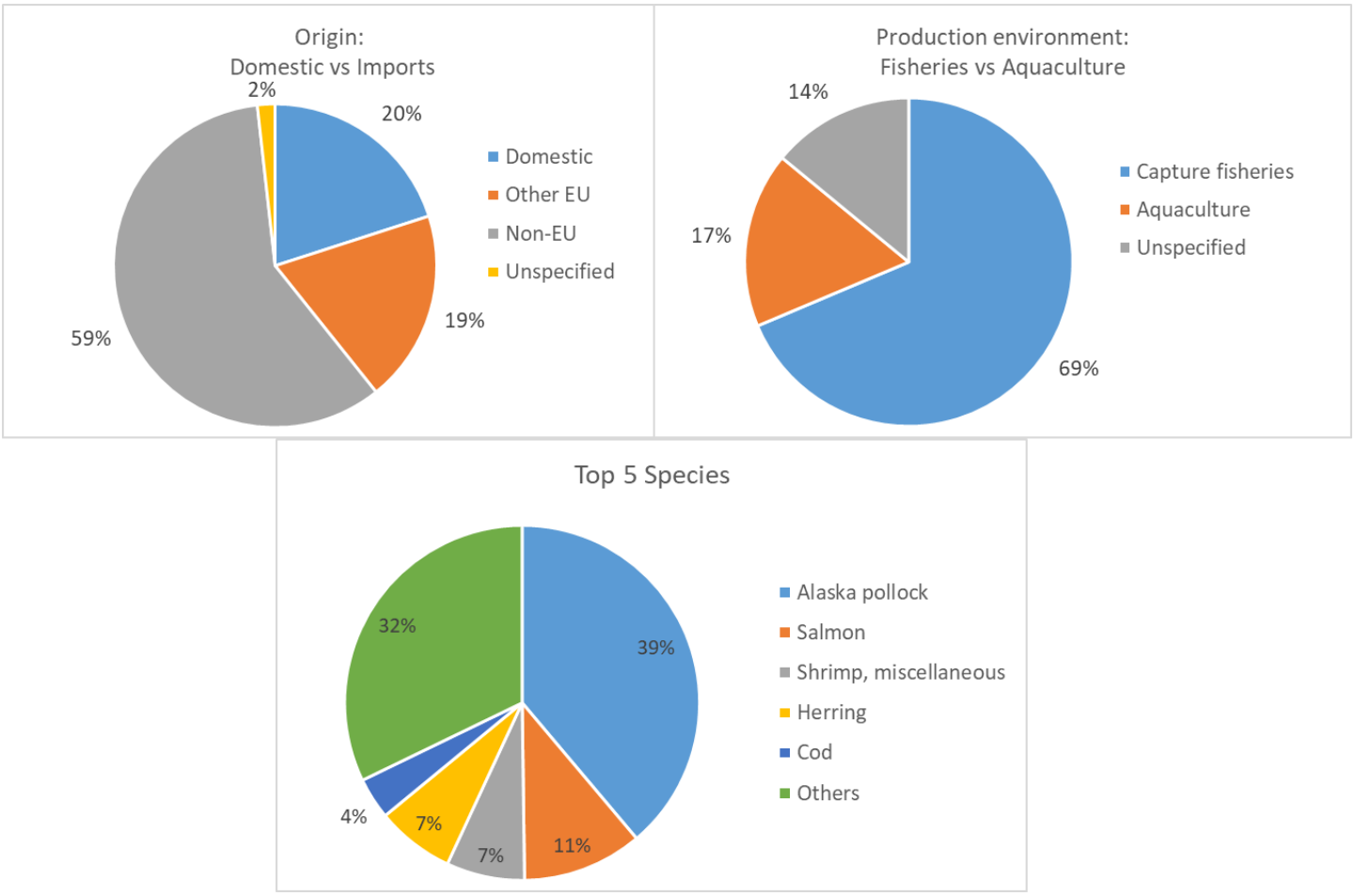
According to the Federal Statistical Office, the German fish processing industry produced a total of 406 510 tonnes of products in 2021, this represents a decrease by 6% compared to the previous year and a decrease of 3% compared to the last report. There is no further information available on the volume or source of the used raw materials.

Therefore, a section on raw material was included into a survey conducted in 2023 among German fish processors. During that survey, information on the total volume of raw material used in 2021 and the origin of the raw material per species (domestic, EU and non-EU) were requested. Furthermore, specification of the source of raw material (capture fisheries and aquaculture) could be given in the questionnaire. Compared to the last report, where around half of the raw material came from other EU countries made up the largest share, the composition has changed. The responses to the survey display the following distribution: only 20% of the raw material used by the responding firms in 2021 originated from Germany. 19% was imported from other EU countries, while 59% were purchased from outside the EU. The majority (69%) of the processed raw material originated from capture fisheries. Only 17% of the raw material processed in 2019 by the surveyed processors was produced in aquaculture and the fish processors did not specify the remaining 14%. The biggest share of the raw material purchased by the responding firms was frozen (49%), 28% fresh and 23% was already semi-processed.

Looking at the specifications given in the survey, the species reported most were Alaska pollock, salmon, shrimps, herring and cod. All of these species were among the ten most consumed species in Germany in 2021 (see section 5.10.5 Trends, drivers and outlook).

The main product groups of the fish industry in 2021 were breaded fish products, fish fingers, herring products, fresh and chilled fish fillets, and prepared fish-based meals. Prepared crustaceans and molluscs, other prepared fish products, prepared fish-based meals, and other frozen fish meat recorded the largest percentage increases in production volume[15].

Figure 8.10.4 Main raw material used by origin, production environment and Top 5 species, Germany, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.10.5 Trends, drivers and outlook

Trends[16]

The war in Ukraine resulted in an increase of global energy prices, which affected all enterprises and private consumers. Overall, it is not expected that the fish processing industry will be more affected than other food producing industries. While the cost for processing freezing, drying and transporting the products has increased, this was also the case for all other industries.

The German market highly depends on imports. The volume of imported fish and seafood (857 478 tonnes) represented 90% of the total volume in the German market in 2021. The dependency remained the same compared to 2020, but has increased since 2018 (87% in 2018 and 89% in 2019). The main contribution of imports to the German fish and seafood market in terms of value

[15] Geschäftsbericht des Bundesverbandes der deutschen Fischindustrie und des Fischgroßhandels e.V. (2022): https://www.fischverband.de/download/geschaeftsbericht-2021.pdf (last retrieved, October 27, 2023).
[16] Fisch-Informationszentrum e.V. (2022): Daten und Fakten 2022.

consisted of 37% processed fish products, 23% sea fish, 22% freshwater fish, and 18% crustaceans.

Regarding the demand, per capita fish consumption remains below the EU average: it has decreased from 15.5 kg in 2011 to 14.3 kg in 2019 further to 12.7 kg in 2021. This per capita fish consumption consisted of 57% sea fish, 28% freshwater fish and 14% crustaceans. This composition means a slight increase of crustaceans and a decrease in freshwater fish compared to 2020. In 2021, the ten most consumed species were salmon (18%) followed by Alaska pollock (17.4%), tuna (13.3%), herring (11.1%), crustaceans (8.7%), trout (6.5%), squids (2.8%), mussels (2.0%), mackerel (1.7%) and cod (1.6%).

In total, private households in Germany consumed 495 953 tonnes of fish and aquatic products at home, generating EUR 4 079 million. This represents a decrease by 2% in value compared to 2020.

According to the Federal Statistical Office (Destatis), enterprises of the German fish processing industry with more than 20 employees produced a total of 406 510 tonnes of products in 2021. This is a decrease by 6.4% of volume compared to 2019. The composition of this total production volume consisted of 57% frozen products, 16% processed products, 8% products with fresh fish, 6% convenience products, 5% salads, 4% smoked fish products, 1% crustaceans and mollusc products and 1% other products.

Trade partners[4]

In 2021, the main trade partner for Germany in the EU was Poland. These imports alone added up to 21.7% of the value of the imported products, followed by the Netherlands (12.4%) and Denmark (8.6%). For non-EU countries, the main trade partners were Norway with a share of 8.8% of the value of the imports, China (6.9%), the US (4.1%) and Vietnam (3.7%).

With regards to the imported product groups, the most important trade partners for canned tuna in 2021 were the Philippines and Papua New Guinea, while canned herring was imported mostly from Poland and Denmark, canned sardines from Morocco and the Netherlands and canned mackerel from Denmark and the Netherlands.

Certification

Germany remains the largest market for MSC labelled products in the world with 2707 different MSC certified products sold in 2021/22. In 2021, the German Lidl branches launched their own tuna brand with the MSC seal[17]. In addition, Rohlik, the leading online grocer in Central Europe, expanded into Germany in 2021 under the name "Knuspr" and offer a wide range of fish products certified with either the ASC or MSC seal. Of the total 30 fish products, 16 carry the ASC seal, while the remaining products are either MSC certified or have biodiesel certification[18].

The herring fishery in the central Baltic Sea was suspended from MSC certification in September 2021 due to poor stock development[19].

North Sea cod fisheries lost their MSC certification at the end of 2019 after stocks dropped below the safe biological level[20]. As cod falls under the ten most consumed species in Germany this might affect German processors, even though the sources for this raw material are diverse.

Covid-19 Impacts

Due to the Corona pandemic in 2020 industries around the world were faced with big challenges – the German fish processing industry was no exception. The various restrictions on social and

[17] MSC (2021): Supplementary Information to the MSC Annual Report 2021-22. Marine Stewardship Council, London, UK.
[18] https://www.snfachpresse.com/lesen/issues/fm/2021/09/#p=19 (last retrieved, October 25, 2023).
[19] https://www.msc.org/de/presse/pressemitteilungen/zentraler-ostseehering-schon-seit-september-2021-nicht-mehr-msc-zertifiziert (last retrieved, October 25, 2023).
[20] https://www.msc.org/media-centre/press-releases/press-release/north-sea-cod-to-lose-sustainability-certification (last retrieved, February 24, 2022).

economic life (such as the temporary closure of restaurants and hotels and the cancelation of events), aimed at containing the virus, affected German processors in their distribution, as many of their clients belong to the hotel and gastronomy sector. Adapting to the new circumstances was not always possible as distribution channels vary regarding the demanded species, products and sizes. According to the industry, towards the end of 2020 lacking transportation within international cargo logistics led to late deliveries and high prices. Nevertheless, the temporary closure of the gastronomy sector in combination with working from home and short-term work arrangements ultimately led to a change in consumer behavior towards growing demand in retail and online shops. Stocks in retail from the previous production year were reduced due to hording activities within the German society at the beginning of the pandemic.

In 2020, private households bought 503 968 tonnes of fish and seafood at a total value of EUR 5 288 million for the consumption at home[21]. This corresponds to an increase of 13% in volume and 15% in value. The biggest increase in volume was registered for fresh products (+18% in 2020 compared to 2019) followed by frozen products that increased by 14%. Smoked and canned products increased by 12%, marinated products and other products by 10%.

According to the Federal Statistical Office in Germany, fish processing enterprises with more than 20 employees increased their production by 4% in volume and by 1.1% in value in 2020.

In 2021, the second year of the Corona pandemic, companies in the German fish industry again faced extensive challenges. The continued restricted out-of-home market and an associated weaker demand, as well as strict hygiene measures and in some cases high levels of sick leave, had a direct negative impact on business. At the same time, the entire industry was confronted with rising raw material and energy prices as well as shortages of materials, delays and exorbitantly high costs in logistics. In particular, the high dependence on international supply chains confronted companies with never-ending adjustment processes and higher costs, which could not be passed on to end consumers to the same extent and only with delays. In addition, as expected, demand for seafood weakened in the second Corona pandemic year after an extremely strong first Corona pandemic year.

Private households bought 495 325 tonnes of fish and seafood with a total value of EUR 5 348 million for the consumption at home[22]. This means a decrease by 2.2% in volume, but still an increase in value by 1%. The volume for fresh products and smoked products still increased, but fresh products decreased by 5%, cans and marinades decreased by 9%

Outlook

Influenced by the Russian attack on Ukraine and further consequences following the Corona-Pandamic and Brexit, the near future will continue to be characterized by the largest raw material and energy crisis since the Second World War. To produce healthy and sustainably sourced food from the sea, the industry must continue to absorb rising costs for raw materials, ingredients, packaging materials, energy and logistics, as well as high labour and bureaucratic costs[23].

8.10.6 Data coverage and quality

The Federal Statistical Office in Germany (Destatis) holds a database with data on the number of enterprises and employees. In addition to this enterprise register, the Federal Statistical Office in Germany (Destatis) conducts a probability sample survey on several cost items with a threshold of companies with 20 and more employees. These data sets are well established and provide reliable and validated time series. In order to avoid doubling data collection, these primary data are used for the purpose of the data collection in the fish processing sector. The quality of the available data can be regarded as very high due to the fact that the data on the fish processing industry by the Federal Statistical Office (Destatis) are collected under European Structural Business Statistics

[21] Fisch-Informationszentrum e.V. (2021): Daten und Fakten 2021.
[22] Fisch-Informationszentrum e.V. (2023): Daten und Fakten 2023.
[23] Geschäftsbericht des Bundesverbandes der deutschen Fischindustrie und des Fischgroßhandels e.V. (2023): https://www.fischverband.de/download/geschaeftsbericht-2022.pdf (last retrieved, October 27, 2023).

(SBS) standards.

Unfortunately, since 2021 the Federal Statistical Office in Germany does not publish the data of the statistics "Cost structure survey" (Kostenstrukturerhebung), which was the basis for the total production costs and the division of income into turnover from fish processing and other income. Consequently, the methods have been adjusted and comparisons between 2020 and 2021 should be made with caution.

Furthermore, the Federal Employment Agency registers all persons employed belonging to the social security scheme in Germany together with the additional characteristics gender and nationality. The data collection of the Federal Employment Agency is based on the registration procedures for legal social security which is why the data quality can be regarded as very high as well.

For the variables where data are not available via other administrative bodies (as it is the case for financial income, subsidies on investments, weight of raw material by origin, weight of raw material by production environment and weight of raw material by species) or data on employment figures are not sufficiently covered by the Employment Agency (as it is the case for employment by level of education and employment by age), the Thünen Institute of Sea Fisheries conducts an additional standardised survey.

Data on the variables gross debt and total values of assets are not included in any of the available national statistics. Therefore, publicly available financial accounts of the biggest German fish processing companies were used with a sample size that amounted to 80-85% of the turnover published by Destatis for 2020 and 2021.

8.11 Greece

8.11.1 Overview

The fish processing industry in Greece encompasses a range of activities, including freezing, processing (such as filleting, salting, drying, smoking, marinating, cooking, and canning), and deshelling shellfish, primarily mussels. Many of these companies engage in a secondary, financially significant activity, involving fish trading and the production of fish-free meals and canned products. Table 8.11.1 outlines the evolution of the sector's structure over the 2016-2021 period, illustrating fluctuations in the total number of fish processing enterprises.

In 2021, there were 169 companies primarily involved in fish processing, and the preceding year, 2020, saw a similar count of 170 companies. However, in 2019, the number was 155. This variability can be attributed to the sector's heavy reliance on market conditions for raw materials, which fluctuate annually. Especially in the small companies' sector, companies engaged in fisheries processing as a secondary operation, will either pause or substantially scale down this activity in response to annual market conditions. In such instances, they typically either suspend their processing operations or acquire pre-processed fisheries for repackaging and distribution under their own brand.

The sharp increase is primarily attributed to the greater supply of raw materials in 2020 as a result of COVID-19 lockdown measures. Unsold quantities of fish, which were originally intended for restaurants, were repurposed as raw materials for fish processing. Additionally, the increased demand for processed fish products in 2021 can be mainly attributed to the recovery of touristic industry, and to the depletion of fish stocks and the consecutive rise in fresh fish prices due to the algal bloom phenomenon in Greek seas. This rise in demand led to increased raw material purchases and, consequently, higher sales levels for companies in the fish processing sector, particularly for those in the small category.

Table 8.11.1 Overview, Greece, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	144	133	145	159	169	168	155	170	169	-1%
≤ 10 employees	111	100	112	121	129	130	119	130	130	0%
11-49 employees	27	29	29	31	32	30	28	32	31	-3%
50-249 employees	6	4	4	7	8	8	8	8	8	0%
≥ 250 employees	0	0	0	0	0	0	0	0	0	0%
Employment (number)										0%
Total employees	2,183	1,964	2,062	2,277	2,392	2,292	2,357	2,463	2,500	2%
FTE	1,763	1,606	1,690	2,033	2,130	2,048	2,144	2,231	2,263	1%
Indicators										0%
Turnover (million €)	195	214	239	251	296	254	235	240	269	12%
FTE per enterprise	12.2	12.1	11.7	12.8	12.6	12.2	13.8	13.1	13.4	2%
Average wage (thousand €)	12.8	13.2	15.8	13.2	15.9	16.4	13.9	18.1	18.8	4%
Unpaid work (%)	4.5	4.4	4.4	4.6	3.1	3.8	3.6	3.6	3.5	-5%
Enterprises doing fish processing not as main activity										0%
Number of entreprises	10	9	10	10	11	11	13	14	13	-7%
Turnover attributed to fish processing (million €)	0.7	0.7	0.7	0.8	0.9	0.9	1.1	2.6	2.5	-7%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In Greece, most of the companies in the fish processing sector belong to the very small category (≤10 category: 76%). Following in percentage is the 11-49 category (19%), with the 50-249 category being the last one with a percentage of 5%.

The increased market demand for processed fish in 2020 and 2021 led to the strengthening of the processing activity as the number of the very small companies of the sector returned to the 2017-2018 levels with a 9.2% increase. The enhancement of the industry's activity was followed by an increase of employees' number and as a result, the sector demonstrated the highest value of the employment since 2016, as 169 enterprises employed 2 500 employees in total numbers and 2 263 in FTE numbers, a 2% increase compared to 2020. In order to meet the increased demand, the companies in the 11-49 and 50-249 categories demonstrated an approximately 10% personnel increase compared to 2019. The enhancement of the processing activity with qualified staff, along with the rise of wages in Greece led to an increase of average wage in the sector.

Finally, the increased activity of the industry during the last 2 years of the survey, positively impacted the enterprises with fish processing as secondary activity by approximately 138% in 2020-2021, compared to 2018-2019 values.

8.11.2 Economic performance

After a 3-year period of decreasing performance, 2020 and 2021 saw a notable upturn in the sector's revenue, with 2021 experiencing a 12% surge compared to 2020. During the same period, other sources of income witnessed a more significant increase of 40%, since most of the companies also record revenues and sales from activities such as the trade of fresh fish, frozen meats, fruits, and vegetables, as well as other canned and processed foods. The overall revenues of companies in the industry were boosted by government subsidies during the 2020-2021 period, with the aim of mitigating the impacts of the COVID-19 lockdown measures.

Regarding the industry's expenditures, 2020 and 2021 demonstrated a significant increase of raw material purchases, and year 2021 demonstrated a 12% increase of fish purchases compared to 2020 and a 38% increase compared to 2019. Similarly, wages and salaries also recorded a 6% rise in 2021 compared to 2020 and a 43% increase compared to 2019, following the employment increase in the sector during this 2-year period. For the same period, value of unpaid labour remained stable, but showed a 38% increase from the 2019 value.

The energy cost for the sector in 2021 demonstrated a 3% rise from the 2020 and a 12.8% increase compared to 2019. It is obvious that, despite this increase, the impacts of the Russia-Ukraine war on energy prices had not yet appeared in the sector's economic results for the year 2021. Furthermore, the earlier mentioned growth in parallel activities resulted in a 47% increase in other operational costs for 2021 compared to 2020, reaching a record high value of EUR 232 million. As a result, the total production cost value for the sector demonstrated a 24% increase in 2021 compared to year 2020.

The reactivation of a major fish processing company during the 2020-2021 period and the industry's efforts to meet the increased demand for fish processed products by enhancing production facilities led to an increase in capital-related indicators. These indicators include a 12% rise in depreciation of capital, a 10% increase in the total value of assets, and an 8% increase in net investments from 2020, representing a substantial 187% increase compared to the 2019 respective value. An increase in debt during the 2020-2021 period compared to the previous one (EUR 389 million, compared to the EUR 201 million of 2019) and the small increase of net financial costs can be attributed to the enhancement of the companies' capital.

In 2021, all four economic performance indicators exhibited substantial growth when compared to 2020, with a 23% increase in GVA, a 24% boost in cash flow, a 26% rise in EBIT, and a remarkable 42% surge in net profit. Finally, labour productivity demonstrated a 21% increase in 2021 compared to 2020 and capital productivity had also a respective 11% increase in value.

Although there is a significant increase of important financial indicators, the increase of debt by 93%, the increase of production cost by 24% and the decrease of financial position by 67% in 2021 compared to 2019 puts the sector in a very difficult financial position in the short term.

It should be noted that in the year 2021, there appears to be a greater total "other income" than turnover. This is due to the fact that for the last two years, companies of 50-249 demonstrate exceptionally large secondary activities that, combined, surpass their main activity. In 2021, the difference is so significant that it affects the entire sector with total "other income" surpassing turnover (EUR 269 million versus EUR 310 million in other income). Over the past 7 years, a

continuous increase of parallel activities has been observed, especially in the 50-249 category as they take advantage of their freezing or processing fixed capital. This activity may include packaging and freezing services for meats and vegetables, as well as the import and trade of pre-processed fish with simple packaging. Furthermore, the large companies usually demonstrate two or more parallel activities. Each one of the secondary activities typically produce lower income compared to turnover; however, in many cases, their combined total sales exceed the sales of the primary category. This phenomenon will be monitored in situations where certain traditional fish processing firms demonstrate for continuous years a secondary activity that surpasses their primary one. Should this occur, these companies will be moved to the "non-primary activity" category in the upcoming survey.

Table 8.11.2 Economic performance indicators, Greece, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	195.2	214.3	238.8	251.0	295.9	253.6	235.2	240.0	269.0	12%
Other income	2.4	2.2	1.7	118.4	153.1	137.5	177.9	222.1	310.2	40%
Operating subsidies	2.0	1.9	0.4	0.0	0.0	0.0	0.0	6.2	1.8	-71%
Total Income	199.6	218.3	240.9	369.4	449.0	391.1	413.1	468.4	581.1	24%
Expenditure (million €)										
Purchase of fish and other raw material for production	139.6	143.3	156.9	159.8	177.6	160.0	151.3	182.0	203.0	12%
Wages and salaries of staff	21.6	20.2	25.5	25.5	32.9	32.3	28.6	38.8	41.0	6%
Imputed value of unpaid labour	1.0	0.9	1.2	1.2	1.0	1.3	1.1	1.5	1.5	0%
Energy costs	11.9	7.5	13.3	28.7	35.7	26.4	27.3	29.9	30.8	3%
Other operational costs	14.3	8.0	19.0	143.0	168.5	113.8	117.6	157.8	232.1	47%
Total production costs	188.4	179.9	215.9	358.2	415.7	333.7	326.0	409.9	508.4	24%
Capital Costs (million €)										
Depreciation of capital	6.7	11.2	5.9	7.3	8.1	4.8	6.4	9.3	10.4	12%
Financial costs, net	27.2	26.3	12.3	8.0	10.9	7.3	7.1	11.6	9.0	-23%
Capital Value (million €)										
Total value of assets	435.5	397.7	315.7	233.4	323.9	255.0	263.1	380.7	420.2	10%
Net Investments	14.9	6.9	-0.6	0.7	2.8	5.2	5.3	14.2	15.3	8%
Subsidies on investments				0.4	0.1	0.3	0.1	1.1	2.4	127%
Debt	409.3	419.1	254.4	206.0	280.1	199.1	201.7	356.3	389.2	9%
Economic performance (million €)										
Gross Value Added	31.8	57.7	51.2	37.9	67.2	90.9	116.8	92.5	113.3	23%
Operating Cash Flow	11.3	38.4	24.9	11.2	33.3	57.4	87.1	58.4	72.6	24%
Earning before interest and tax	4.5	27.3	19.0	3.9	25.1	52.5	80.7	49.2	62.2	26%
Net Profit	-22.7	0.9	6.7	-4.1	14.2	45.2	73.6	37.5	53.2	42%
Productivity and performance Indicators										
Labour productivity (thousand €)	18.0	35.9	30.3	18.6	31.6	44.4	54.5	41.5	50.1	21%
Capital productivity (%)	7.3	14.5	16.2	16.2	20.8	35.6	44.4	24.3	27.0	11%
GVA margin (%)	16.1	26.7	21.3	10.3	15.0	23.2	28.3	20.0	19.6	-2%
EBIT margin (%)	2.3	12.5	7.9	1.1	5.6	13.4	19.5	10.5	10.7	2%
Net profit margin (%)	-11.3	0.4	2.8	-1.1	3.2	11.6	17.8	8.0	9.2	14%
Return on Investment (%)	1.0	6.9	6.0	1.7	7.8	20.6	30.7	12.9	14.8	15%
Financial position (%)	6.0	-5.4	19.4	11.8	13.5	21.9	23.3	6.4	7.4	15%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.11.3 Breakdown by company size

All company categories in the sector experienced significant increases in all variables in the year 2021 compared to 2020. The largest increase, both in total income and total production costs, was recorded by the very small category with ≤ 10 employees, with a 42% and 51% increase, respectively. This same category also reported the highest net profit value of EUR 45.5 million. As depicted in Table 8.11.1, the very small category includes most companies (130 out of 169 in total, for 2021).

The second category, which consists of 11-49 employees, experienced a stellar financial year in 2019. However, it is the only category that demonstrated a decline in all values in 2020 compared to 2019. It also showed increased values in the following year, although these values were lower than those in 2019. This category shows the lowest turnover (of EUR 120.5 million) for the year 2021 among the three categories.

The large category of 50-249 employees, after continuous years of financial losses, shows low profits in 2021 despite having almost double the total income of EUR 298.1 million compared to the EUR 142.3 million in 2019. The parallel significant increase in the total production cost in 2021 (a 17% increase compared to 2020 and a 108% increase compared to 2019) kept profit levels in check. However, the eight companies in the large category, despite constituting only 5% of the entire sector, represent 51% of the total income and 55% of the total production cost of the sector.

Table 8.11.3 Economic performance by size, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	33.7	20.5	39.3	52.8	119.1	113.3	107.2	114.8	162.5	42%
Total production costs	32.2	33.3	37.9	66.8	77.8	65.4	56.3	76.9	115.9	51%
Gross Value Added	6.6	-9.9	7.3	-6.5	50.8	58.6	61.1	47.6	57.0	20%
Operating Cash Flow	1.5	-12.8	1.4	-14.0	41.3	47.9	50.9	37.9	46.5	23%
Earning before interest and tax	-2.5	-19.5	0.7	-14.9	40.5	47.2	50.4	37.3	45.9	23%
Net Profit	-20.9	-33.9	-0.1	-15.6	39.6	46.5	50.2	36.9	45.5	23%
between 11 and 49 employees										
Total Income	62.4	82.1	94.6	142.7	147.4	135.8	163.5	100.2	120.5	20%
Total production costs	85.3	69.7	91.5	115.0	130.4	131.4	134.0	91.6	110.4	21%
Gross Value Added	-14.9	19.6	12.4	35.3	27.0	14.4	39.5	19.5	22.7	16%
Operating Cash Flow	-22.9	12.5	3.1	27.7	17.0	4.5	29.5	8.6	10.1	17%
Earning before interest and tax	-23.7	11.6	0.5	26.3	15.1	3.4	27.2	6.5	7.0	8%
Net Profit	-24.2	7.3	-2.9	25.3	13.1	1.6	25.0	5.2	5.7	10%
between 50 and 249 employees										
Total Income	103.5	115.7	107.0	173.9	182.5	142.0	142.3	253.4	298.1	18%
Total production costs	70.8	76.9	86.5	176.4	207.5	137.0	135.7	241.4	282.1	17%
Gross Value Added	40.1	48.0	31.6	9.0	-10.6	17.8	16.2	25.4	33.6	32%
Operating Cash Flow	32.7	38.8	20.4	-2.5	-25.0	5.0	6.7	11.9	16.0	34%
Earning before interest and tax	30.7	35.2	17.8	-7.4	-30.4	2.0	3.1	5.4	9.3	71%
Net Profit	22.5	27.5	9.7	-13.8	-38.5	-3.0	-1.6	-4.6	2.0	-143%

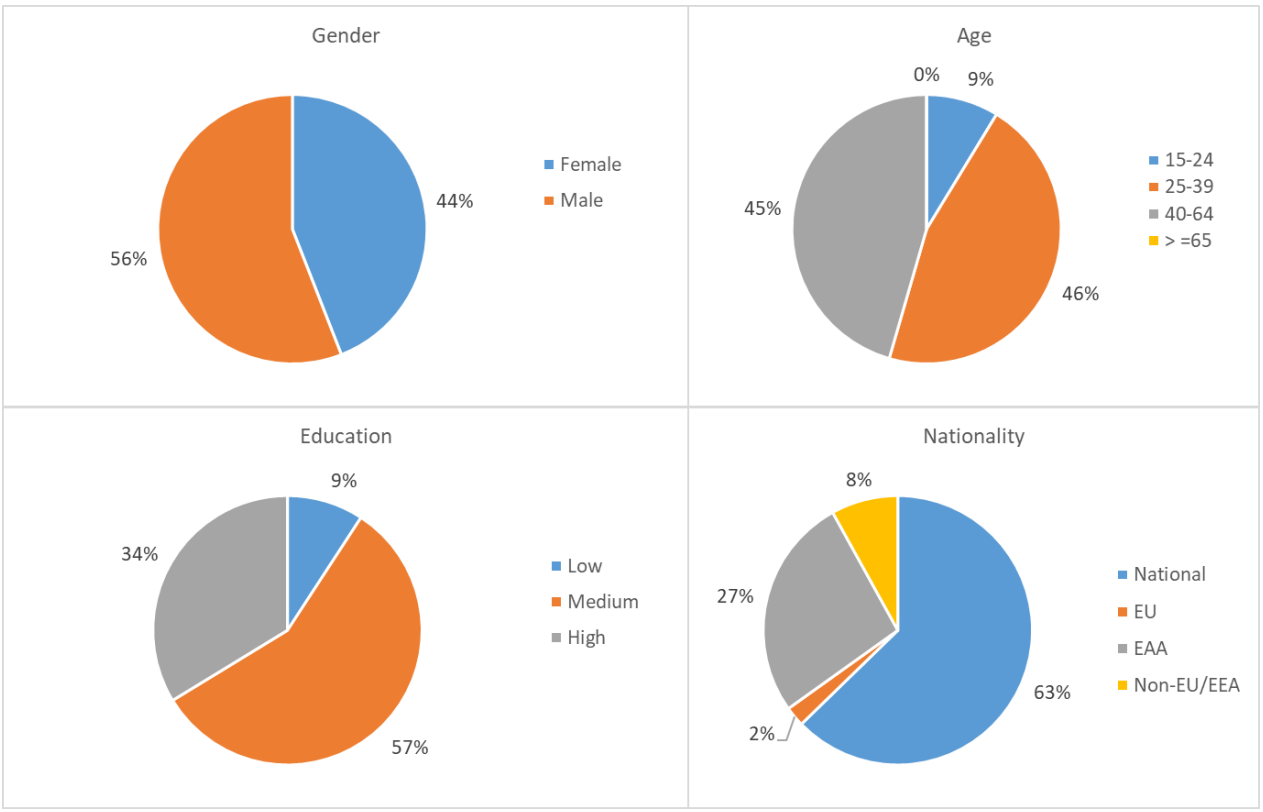
Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.11.4 Socio-demographic structure

Fish processing industry promotes equality by offering employment opportunities to both females and males. In 2021, there were 2 500 employees in the industry consisted of 44.1% females and 55.9% males. There is a difference in gender mix between companies with 11-49 employees and companies with 50-249 employees with 40.3% and 47.5% female representation respectively. Data about the employees' gender distribution between companies of different size is presented in Figure 8.11.2.

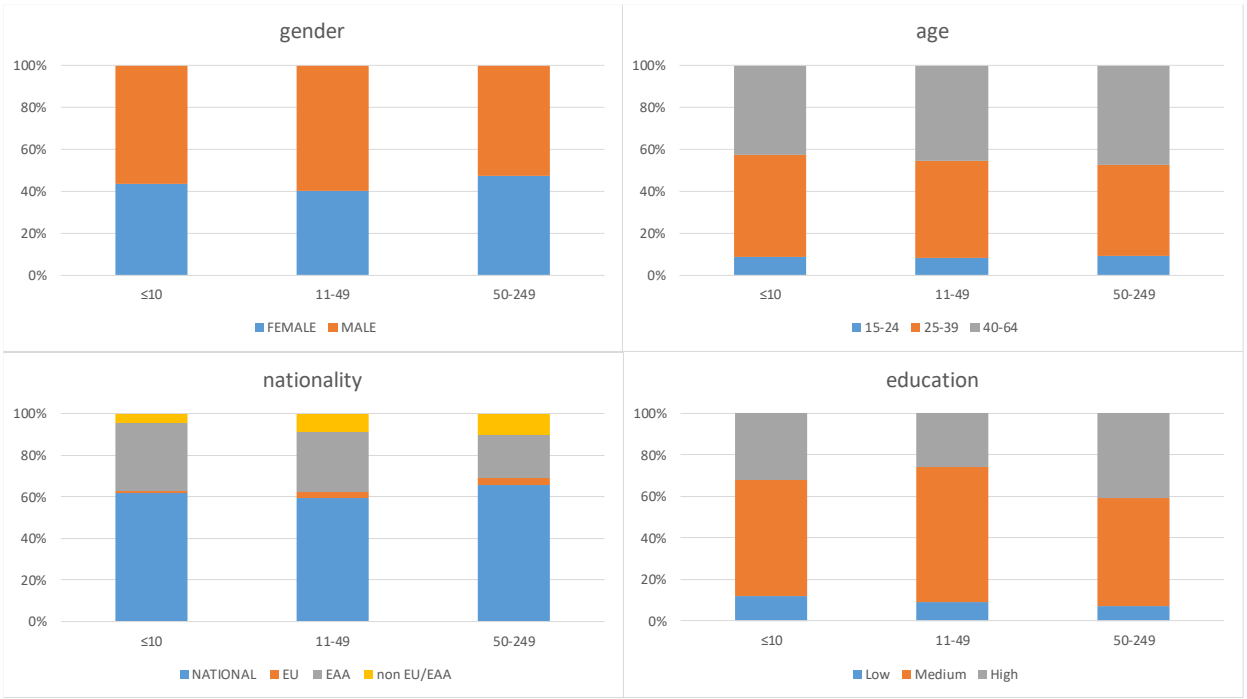
Employees working in fish processing industry present a balanced age profile between 25-39 and 40-64 age classes representing 45.8% and 45.5% respectively in 2021. There are no significant differences in age class representation between companies of different size. Data for employees' age classes in fish processing industry presented in Figure 8.11.2.

Figure 8.11.1 Socio-demographic characteristics, Greece, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Figure 8.11.2 Distribution of the employment by gender, age, nationality and education according to enterprise size, Greece, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The level of education of employees in fish processing industry is medium to high. At national level, 9.2% of employees have primary level education (low) when 57.1% have high school education

(medium) and 33.7% have a bachelor's degree (high). There are differences in the educational level of employees between companies with different size as companies with less than 10 employees have 11.9% employees with primary education (low) and companies with 11-49 employees have 25.8% employees with high school education (medium). Big size companies with 50-249 employees have 40.9% of their staff with a bachelor's degree. This is expected because these companies have more administrative needs and more complicated structure with sales, logistics and quality assurance departments. Figure 8.11.2 presents information about employees' educational level for the different segments of the industry.

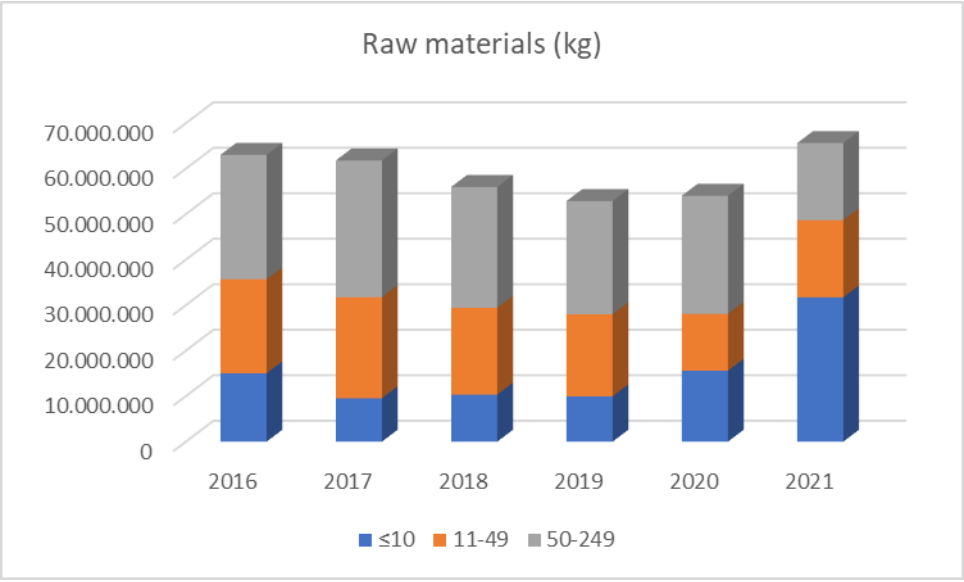
The majority of employees in the sector are of Greek nationality with 62.7% industry average. Important part of the staff is of EEA origin (26.8%) and small parts is of Non-EU origin (8%) and EU origin (2.4%). There are differences in staff origin between companies of different size with companies of 50-249 employees having higher inclusion of Non-EU employees (10.2%) compare to small size companies with less than 10 employees (4.2%). There are also differences in employees originated from EEA countries between companies of 50-249 employees and less than 10 employees with 20.9% and 32.9% inclusion level respectively. Information about employees' origin in the different segments of the industry presented in Figure 8.11.2.

8.11.5 Raw materials

The Greek fish processors utilize raw materials obtained from domestic fisheries and aquaculture companies, or they import these materials. Processors may either own or lease fishing boats to ensure access to valuable raw materials. Additionally, the fish auction market serves as the primary source for acquiring raw materials within the processing industry.

There was an increase of 21.4% in terms of quantities of raw materials used in 2021 compared to 2020. This increase was not balanced between the different segments of the sector in Greece. The very small companies with less than 10 employees doubled the quantities of raw material used in 2021 compared to 2020, when the companies with 50-249 employees faced a reduction by 35% for the same period. Companies with less than 10 employees used 48% of total raw materials when the other two size segments of the sector shared the rest of the quantities using 26% each (Figure 8.11.3).

Figure 8.11.3 Raw materials used by firm size in kg, Greece, 2016-2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Based on the raw material data survey for 2021, a wide variety of products are offered such as fresh (4.7%) and frozen fillets (1.4%), smoked (2.7%), canned fisheries products (31.6%), crustaceans (36%) and molluscs (21.7%). Raw materials are mainly imported and small part of them sourced by domestic fisheries (anchovies, sardines, mackerel, and cuttlefish) and aquaculture (molluscs, trout and gilthead sea bream). Small size companies with less than 10 employees use significant higher quantities of fish sourced from domestic fisheries and molluscs from local

aquaculture companies compare to big size companies (50-249 employees) that are depended on imported raw materials. Companies with 11-49 employees sourced domestic fisheries products in comparable quantities to the small sized companies.

The most important species sourced from the domestic fisheries are sardines, cuttlefish, and anchovies. Molluscs sourced from local farms are the most dominant species used from aquaculture, followed by trout and gilthead sea bream. Significant quantities of farmed salmon are imported through Italy. Given that a large part of imported species is not specified, the imported species with higher volumes are octopus, shrimps, squids, cods and sharks. In 2021, quantities (32 544 tonnes) of imported species declared as crustaceans and fish fillets have been increased by 73% compared to 2020 (18 723 tonnes). In the same period, local sourcing of sardines and anchovies reduced by 36% as less quantities harvested in 2021 from the local fleet.

8.11.6 Trends, drivers and outlook

In the 2020-2021 period, the fish processing industry in Greece demonstrated positive performance by capitalizing on the lockdown period due to COVID-19 and reduced fresh fish supply. The sector increased its total revenue, net profit, and assets, along with an increase in net investments. However, production costs and debt also significantly increased.

The demand for processed fisheries products is expected to remain high, as the touristic arrivals remain high for Greece. While the significant increase in seafood processed product prices is attributed to inflation, the demand for this niche market is expected to remain robust. Local consumption of lower-priced items, such as frozen crustaceans and cephalopods, is also expected to endure.

Increase in price of raw materials is expected for aquaculture products and high value fisheries products. The prices of imported low value crustaceans and fish expected to remain stable or with marginal increase. The increase in energy costs began to be recorded in the industry from 2020, well before the impact of the war in Ukraine on energy prices became fully perceptible. As several large processing companies in Greece are located in remote areas without access to ports or fish auction sites, they are significantly affected by the increase in transportation costs. The significant increase of main production costs expected to strangle the margins of the fish processing companies.

Additionally, the aforementioned inflation causes an increase in the prices of supplementary raw materials such as oil and spices, among others. It should be noted that a traditional local product of Greece, such as olive oil, which is a fundamental component of the diet and one of the key ingredients in preservation, has experienced a price rise exceeding 125% since the summer of 2023.

New investments in equipment to meet the increased demand for processed fish products were made to some extent with an increase in borrowing and debt. However, these businesses did not anticipate the continuous interest rate applied by the European Central Bank to address rapidly rising inflation. Particularly, the medium and large category of companies in the industry exhibits a high level of exposure to borrowing, resulting in a significant increase in interest costs, increasing the need for debt restructuring agreements, in order to reduce the financial expenses.

The financial situation of the fish processing companies is expected to become difficult given the increase of main production costs (raw materials, supplementary materials, energy costs) and the increase of financial expenses due to the significant increase of debt during the last two years. Although that demand expected to be stable or to increase there is a question if fish processing companies will succeed to pass new selling prices to the market. To address the rising production costs, it is anticipated that marketing strategies, such as providing lighter products or mixed product packages, will be implemented. Ceasing operations of non-profitable companies is also expected in the next period.

Furthermore, during the onsite interviews, company representatives expressed their concern about price competition with imported products from third countries. The sector primarily consists of small-scale units, which are more exposed to the consequences of international competition. However, according to the same representatives, a positive development was the increase in demand for frozen fish in 2022. This increase was attributed to the rising prices of fish caught

through fishing, resulting in a significant boost in wholesale sales of frozen fish to restaurants and hotels. This trend is expected to continue into 2023.

Covid-19 impact

As mentioned earlier, the impact of COVID-19 on the fish processing sector was limited. The pandemic resulted in increased demand for fish processing products, as reflected in the sector's financial reports. Additionally, in the case of Greece, the economic support provided by the Greek government as subsidies to businesses for addressing COVID-19 was used by several of them as low-interest loans for financing new investments and enhancing their production processes.

8.11.7 Data coverage and quality

In accordance with the Greek National Work Plans for 2020-2021, data collection for the fish processing sector was carried out by the Hellenic Agricultural Organisation-Demeter (HAO Demeter), of the Greek Ministry of Rural Development and Food. The data collection involved gathering financial information obtained from the annual balance sheets and yearly financial statements of both SA and Ltd companies that adhere to the International Financial Reporting Standards (IFRS). As for small companies in the sector and the additional necessary information related to social data and the detailed cost structure of production, this data was acquired through questionnaires completed by the companies. The responses from these questionnaires were then consolidated with on-site visits and interviews. The data were supplemented and cross-checked by data from Prefectural Chambers of Commerce, Industry and Trade, Prefectural Directorates of Fisheries and Veterinary Services, as well as the National Food Control Agency (EFET), Hellenic Ministry of Rural Development and Food business and professional online data bases.

The methodology for the data collection of the fish processing sector for 2020 was census. Estimation procedure was applied for the energy cost and unpaid labour variables, using the Non-Probability Sample Survey (NPS), according to National Work Plan. For the data collection of 2021, the Non-Probability Sample Survey (NPS) sampling scheme was applied for all variables according to the Greek National Work Plan 2022-2024, with planned sample rates reaching up to 70%. For social data, companies provided data under gender, age, education, and nationality segmentation.

8.12 Hungary

Being a landlocked country, Hungary does not have a marine fishing fleet, and it also stopped commercial fishing on its inland waters beginning 1 January 2016. As a result, the bulk of the domestic fish supply comes from aquaculture. Indeed, as for aquaculture production, it was the 10 the largest EU-27 producer in 2020.

The fish processing industry is undeveloped in Hungary with only about 10-15% of the total domestic fish production reaching the market in processed form. Indeed, the domestic production is mainly sold to the consumer in the form of live fish. According to available data and estimates, live fish account for 55-60% of total fish consumption, with canned fish 10-15%, frozen products 20-25% and 5% for other fish products.

In the past decade fish consumption in Hungary has been increasing, but still remains one of the lowest per capita levels in Europe. According to Eurobarometer data, about one third of the consumers never buy fisheries and aquaculture products. Exception made for carp, for which consumption Hungary is at the highest level in EU, per capita fish consumption is about a quarter of the EU average, equal to 6.45 kg (live weight) in 2019. About 80% of the consumed fish and seafood come from imports (mostly marine fish): on average, about 74% of the total supply volumes are imported. Imports are mostly processed (canned fish, deep frozen ready to eat products, deep frozen fillets, marinated, smoked, etc.).

According to SBS data, in 2021, the fish processing industry in Hungary consisted of 17 enterprises with an estimated total income of EUR 10 million employing 158 people corresponding to 131 full time equivalent. The industry mainly consists of very small companies: 76% of the total was represented, in 2021, by enterprises with less than 9 employees. The number of employees has fluctuated over the years independently from to the number of enterprises, reaching a peak in 2020 (321 employees). The unpaid labour in 2021 was estimated to be 19 persons representing 12% of the total employees.

Table 8.12.1 Overview, Hungary, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	10	9	9	8	8	9	11	13	17	31%
Total persons employed	18	52	10	12	21	66	71	321	158	-51%
Unpaid labour	6	3	3	4	3	1	9	12	19	58%
FTE	11	47	6	8	14	60	53	296	131	-56%
Income, expenditure and investments (million €)										
Production value	0.5	0.3	0.5	0.3	0.4	6.2	6.5	11.1	9.0	-19%
Turnover										
Total income	0.7	0.6	0.8	0.6	0.7	6.9	7.2	11.8	10.0	-15%
Total purchases of goods and services	0.6	0.6	0.6	0.5	0.6	5.3	5.3	8.5	8.2	-4%
Personnel costs	0.1	0.0	0.0	0.0	0.1	0.7	0.8	3.3	1.3	-60%
Gross investment in tangible goods	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.3	0.0	-99%
Economic performance (million €)										
Gross Value Added	0.0	0.1	0.0	0.1	0.2	1.6	1.9	3.6	2.0	-45%
Gross profit	0.0	0.0	0.0	0.0	0.0	0.9	1.1	0.3	0.7	123%

Source: Eurostat, 2023.

Table 5.1.1 is giving an overview of the Hungarian fish processing industry. The expenditures are mainly driven by the purchases of raw materials including non-processing goods and services that counts for 82% of the total costs in 2021 (EUR 8.2 million over EUR 10 million total costs). These

costs have slightly decreased -4%) between 2020 and 2021, while in the period 2013 - 2021 a significant growth can be observed starting in 2017.

From 2013 to 2021, the Hungarian fish processing industry exhibited consistent growth in its Gross Value Added (GVA).

According to a survey conducted in 2019 by the Research Institute for Agricultural Economics, the volumes of processed products reached about 7 000 tonnes in 2018, of which 5 500 tonnes was produced from domestic raw material. Half of the enterprises seems to conduct only primary processing.

African catfish is the largest processed species with 65% of the total volume followed by common carp accounting for 20%.

The major share of primary processed products includes fresh whole fish and fresh fillets, while the smaller share belongs to frozen fish and fillets. In general, fresh fish and fillets make up the largest product group with 60% of the total output of the processing sector. Secondary (final) processing activity involves 8% of the total number of enterprises, and they produce smoked and frozen products. Over 40% of the companies have mixed profiles, combining both primary and secondary processing.

8.12.1 Data coverage and quality

No data were submitted by Hungary during the 2023 data call. For this reason, the EWG prepared a national mini-chapter with limited analyses based on publicly available data (Eurostat) and other external sources for quali-quantitative information (FAO, Eumofa and Eurofish).

The content of this section has been based on different source, mainly country profiles available in FAO, EUMOFA and EUROFISH websites.

8.13 Ireland

8.13.1 Overview

SBS data for Ireland is used for analysis in this national chapter and the EU Overview of this report. However, in years prior to 2020, data was provided under the EU data call. The SBS data refers to a smaller frame population than data previously presented for the EU MAP. It defines fish processors by the strict NACE 10.20 definition and does not include enterprises with less than 3 persons employed. For data submitted under previous fish processing data calls, a wider definition of fish processing enterprises was used defined by national certification methods and expert knowledge. Estimates for enterprise numbers, employment and turnover are given for 2020 and 2021 using this wider frame population to give some consistency to the previous time series data. In this chapter trends in SBS and DCF data, where available, are discussed.

Irish fish processors include operators in the pelagic, whitefish, shellfish, and salmon (smoked) sectors. Roughly, two thirds of Irish processors are involved in whitefish and shellfish operations. The largest enterprises in the sector include predominantly whitefish and pelagic processor firms.

The majority of pelagic processors are larger enterprises with estimated yearly turnover of over EUR 10 million. They are largely based in the northwest of Ireland. While the EU remained the largest export market for pelagic products, exports to Africa increased significantly in 2020.

The whitefish sector has 14 large enterprises in operation. Roughly, half of the fish processors in this category are smaller processing firms earning on average less than EUR 1 million in turnover annually. The majority of both salmon (smoked) and shellfish fish processors are small and medium sized enterprises earning less than EUR 10 million annually, however, there are a small number of larger enterprises (earning EUR >10 million) operating in these sectors. The main export markets for shellfish are the EU and Asia.

Table 8.13.1 provides a summary of indicators for the industry including a wider definition of fish processors beyond the NACE 10.20 definition. The number of Irish fish processing enterprises fell 2% between 2020 and 2021 from 160 to 157. This follows the general declining trend in the numbers of fish processors operating in Ireland since 2008. This is driven, in part, by the amalgamation of enterprises in the sector.

Table 8.13.1.a. Overview, Ireland, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020*	2021*	Δ (2020-21)
Structure (number)										
Total enterprises	165	162	161	164	157	160	166	160	157	-2%
≤ 10 employees	86	84	92	88	86	85	90	86	85	-1%
11-49 employees	57	55	47	49	45	48	48	47	45	-4%
50-249 employees	22	23	22	27	26	27	28	27	26	-4%
≥ 250 employees	0	0	0	0	0	0	0	0	0	0%
Employment (number)										
Total employees	3,534	3,688	3,797	3,949	4,076	3,709	3,962	3,857	3,873	0%
FTE	2,789	2,874	2,963	3,029	3,138	2,784	2,878	2,889	2,874	-1%
Indicators										
Turnover (million €)	613	655	686	630	679	671	622	591	537	-9%
FTE per enterprise	16.9	17.7	18.4	18.5	20.0	17.4	17.3	18.1	18.3	1%
Average wage (thousand €)	32.6	32.5	33.2	26.3	31.2	35.4	26.8			
Unpaid work (%)	3.4	3.4	3.4	4.1	3.2	1.7	1.1			
Enterprises doing fish processing not as main activity										
Number of entreprises	20	20	22	16	16	16	15			
Turnover attributed to fish processing (million €)	50.5	52.6	80.6	47.7	34.6	35.8	43.2			

Source: Data from 2008 to 2019 refers to MS data submitted under the 2021 Fish processing data call and elaboration by the EWG. *Estimates of enterprise numbers, employment, and turnover for main activity processors in 2020 and 2021 were provided for the EWG.

The distribution of enterprise type by employment category has remained relatively stable in the last number of years. On average, half (~55%) of Irish processors employ less than 10 persons and a third (~32%) employing between 11 and 49 persons with larger enterprises employing more than 50 employees attributing to the remainder.

Turnover fell from EUR 622 million to EUR 591 million in 2020. A further decrease was noted in 2021 with turnover falling to EUR 537 million. Market distortions driven by Covid-19 had a significant impact on turnover for enterprises in the sector. With global reduction in demand for seafood globally driven by closures in the hospitality industry, the shellfish sector was particularly negatively affected as main export markets in Asia and Europe were significantly impacted. Negative impacts of Covid on the sector were also shown in employment figures with employment falling by 3% to 3 857 in 2020, recovering marginally (0.4%) in 2021 as the sector showed signs of recovery.

Table 8.13.1.b. gives an overview of the Irish fish processing industry using SBS data. Data from 2013 to 2020 is used for analysis and, where available, 2021 data. According to SBS data, there were 108 fish processing enterprises in Ireland in 2021. These enterprises had a total income of EUR 571 million and employed 2 404 persons.

Enterprise numbers grew marginally in 2021 from 107 to 108. Between 2013 and 2017 numbers of processors grew 9% from 105 to 114. Similarly, employee figures grew 10% over this time. Growth in enterprise numbers may in part be driven by a number of smaller processors amalgamating and expanding to greater than 3 employees, which includes them in the SBS figures. Enterprises with less than 10 employees grew 16% between 2013 and 2017.

Table 8.13.1.b. Overview, Ireland, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	105	101	108	115	114		106	107	108	1%
Total persons employed	2,241	2,373	2,299	2,445	2,469		2,733	2,384	2,404	1%
Unpaid labour	15	13	15	16	15		229	13		
FTE	2,087	2,233	2,147	2,313	2,279		2,409	2,235	2,564	15%
Income, expenditure and investments (million €)										
Production value	543.1	498.1	535.6	580.8	615.4		492.1	473.7		
Turnover										
Total income	576.8	517.1	563.1	602.3	649.1		507.1	483.1	570.7	18%
Total purchases of goods and services	452.1	389.1	428.0	437.2	484.6		382.5	346.0		
Personnel costs	76.5	85.7	77.0	84.4	84.1		104.1	94.3		
Net investment in tangible goods	13.7	23.3	8.2	6.8	2.8		4.4	4.7		
Economic performance (million €)										
Gross Value Added	125.6	127.9	130.1	163.2	122.6		125.3	144.2		
Gross profit	49.1	42.3	53.1	78.8	38.6		21.1	49.9		

Source: Eurostat.

Production value fell 4% to EUR 474 million in 2020 while personnel costs fell from EUR 104 million to EUR 94 million. This follows the decrease in employment which fell 5% from 2 504 to 2 371 driven by the negative economic shock Covid presented to the sector. Employment recovered to 2 404 in 2021 yet remain below pre-Covid levels. Total income fell 5% from EUR 507 million to EUR 483 million in 2020, recovering to EUR 571 million in 2021.

In 2020, Gross Value Added (GVA) was EUR 144.2 for the sector and gross profit was EUR 50 million. These economic performance indicators suggest that the industry performed well comparably to 2019 with GVA and gross profit increasing 15% and 136% respectively. However, this likely reflects the boost to retail sales leveraged by processors in 2020, which allowed processors to maintain sale activity. While processors serving consumer retail channels could leverage increased demand in domestic consumption and some processors partially mitigated

against the negative shock by diversifying into the domestic seafood market, other processors such as shellfish operators were more exposed to the shock as international export markets contracted sharply. Net profit was not available for analysis in this section, which would give a more holistic view into economic health of processors in the market.

8.13.2 Trends, drivers and outlook (Covid-19, Brexit and war in Ukraine)

The Irish fish processing sector faces on-going uncertainty driven by the Russian-Ukraine conflict, lasting negative impacts of Covid-19 restrictions and Brexit. While the Irish fish processing sector adapted well to the economic shock caused by Covid, the continued resilience of the industry will be tested as the sector deals with the fall-out of Brexit, rising input costs caused by conflict in Ukraine and labour supply and retention challenges.

Investment into the sector through private and public channels including EMFF and EMFAF and national public investment programmes will be key to supporting the sector effectively respond to these challenges.

Covid

Covid-19 negatively impacted sectors across the economy including the retail sector and the hospitality industry in particular, nationally, and internationally. This had a direct impact on Irish processing enterprises. Processors were forced to adopt health and safety measures in factories and faced inconsistent supply of raw material due to lockdown restrictions.

Domestic seafood consumption fell 18% in 2020 with the closure of retail in particular, the hospitality sector. Restrictions negatively affected the food services channels and resulted in a decreased demand for high value shellfish products and whitefish. Processors in Ireland mitigated partially against the negative effects of Covid-19 through retail trade. Retail sales of seafood increased 6% in 2020[24].

Processors supplying retail markets saw both value and volume of products increase by 16% and 14% respectively. Enterprises supplying this market with frozen produce showed an increase in sales of 25%. In contrast, fish processors serving the food services industry saw a 30% decline in sales from 2019 driven by closures in this area. This indicates that the impact of Covid was not heterogeneous across the industry.

A number of enterprises proved resilient in changing channels of product provision developing online delivery channels and supplying domestic fishmongers to cater to growing demand. However, processors which changed supply channels to domestic fishmonger markets have largely reverted supply back to pre-Covid service channels as of 2021.

The value of exports fell 8% in 2020. The shellfish sector suffered significant declines in export sales driven by closures in the hospitality sector of main export trading partners in the EU and Asia. In contrast, exports of pelagic products to Africa increased over this time.

The industry showed signs of recovery in 2021 although seafood trade continued to be affected by Covid restrictions globally. Exports to main markets such as Italy, Spain, France, and China largely recovered particularly in the second half of 2021 following rebounds in national economies as Covid restrictions were eased. However, export value of seafood products to China remained below pre-Covid levels in 2021.

The industry faces on-going challenges driven by Covid as logistics costs increase and freight bottlenecks are experienced, particularly in the Asian market. Operators in shellfish are significantly exposed to the on-going restrictions in the Asian food services sector.

[24] The Business of Seafood 2020 (2021) BIM.

Brexit

The EU/UK Trade & Cooperation Agreement (TCA) agreed between the UK and the European Union came into effect on the 1st of January 2021. Under this agreement, there was a transfer of quota from EU member states to the UK. Under the terms of the trade agreement, Ireland faces a 15% reduction in overall value of quota as compared to 2020, which is comparably larger than other EU member state[25].

The processing sector will be impacted as quota transfer causes structural imbalances between fleet capacity and resource availability resulting in market distortion, impacting logistics and route to market options for processors and the availability of raw material inputs. Brexit has increased barriers to trade for Irish processors of both exports and imports. Important trade routes previously facilitated through the land-bridged via the UK are impacted, increasing logistical constraints, and associated administrative and freight costs. Imports from the UK represented a key input into Irish retailers and the processing supply chain. As competition in sourcing raw materials increases, input costs may also rise for enterprises.

While processors across the sector will face challenges securing raw materials, pelagic and *Nephrop* operators will be particularly impacted as Irish quota for mackerel and *Nephrops* face a reduction of 26% (EUR 28 million) and 14% (EUR 8 million), respectively. Shore based processing enterprises will be challenged with a consequent reduction in raw materials available.[26]

Industry has already taken steps to mitigate against the negative impacts of Brexit. Imports of products from the UK to Ireland have declined year on year since 2019 indicating that Irish importers are diversifying into new markets. Public investment has also been leveraged to support enterprises, including processors, impacted by the deal.

Resulting from the substantial impact Brexit had on the Irish economy, just over EUR 1 billion in funding was allocated to Ireland under the Brexit Adjustment Reserve (BAR) fund which aims to provide financial support to the Member States, regions and sectors most affected by Brexit. This represents 20% of the entire Reserve. BAR funding came on stream in 2022. Funding will be attributed in a way that will fosters the profitability, innovation, and viability of impacted enterprises in the sector. Grant-aid support of EUR 90 million in BAR funding was earmarked for the Irish seafood processing sector[27].

The Brexit Processing Capital Support Scheme, facilitated through BAR funding, aims to develop the efficiency of supply chain processes of the Irish seafood processing sector, and support the transition to processes producing higher value chain products. The scheme supports processors seeking to diversify their product offering, innovate supply chain processes and invest in new technologies to extract more value from available raw material and also increase greener practises in business. As shellfish processors were specifically identified as a group that would be significantly impacted by Brexit, BAR funding will support processing enterprises in the shellfish industry innovate and develop new markets, reducing exposure to the UK in export markets, ensuring continued viability.

However, Brexit continues to remain a large threat to industry. While the quota reductions were front loaded in 2021, quota reductions will continue yearly until 2026 resulting in an estimated reduction of around 26 000 tonnes of quota valued at EUR 43 million over the period 2021 - 2026 (Seafood Task Force, Interim Report, June 2021)[28]. Irish processing industries will have to tackle cost pressures and logistical constraints created by Brexit while they navigate the indirect impacts of the war in Ukraine and associated inflation and rising costs.

[25] Interim Report (June 2021) Irish Seafood Task Force.
[26] *Brexit's implications for fisheries* (2021) *IIEA*.
[27] Report of the Seafood Task Force (October 2021) *BIM*.
[28] Interim Report (June 2021) Irish Seafood Task Force.

War in Ukraine

The conflict in the Ukraine represents a significant threat to enterprise nationally and internationally, as energy prices rise. The fish processing industry will face increased production costs driven by rising energy prices and input costs as inflation continues, negatively impacting revenue for the sector. In addition, rising consumer prices may impact demand for seafood products and increase competition in markets.

8.13.3 Data coverage and quality

The years 2020 and 2021 represent a break in the time series data for Irish fish processors. Submission of fish processing data is voluntary under Commission Delegated Decision 9EU) 2021/1167[29]. Ireland does not currently follow the extended programme of data collection for fish processing and has not submitted data for 2020 and 2021, representing a time break in the data. However, a submission of enterprise number by category, employment and turnover for main-activity enterprises was provided.

Following from this SBS data is provided and analysed. The population frame for fish processing enterprises differs from data previously submitted under the data collection framework. SBS data report refers to enterprises which fall under NACE code 10.20. SBS data is compiled using two main sources on the fish processing sector: the Annual Census of Industrial Production (CIP) and the Annual Irish Industrial Production by Sector (Prodcom).

Given the discrepancies between the EU MAP and SBS data, it may be prudent to use the SBS data for NACE 10.20 as the main data source for Ireland's annual reporting to the Scientific, Technical and Economic Committee for Fisheries (STECF) on fish processing. The great degree of overlap between datasets, the statutory nature of the survey, and its alignment with other SBS data, which may allow comparisons and further analysis, are some of the advantages of using CSO SBS data. The remaining issue is that the frame population has differed between the DCF estimates and the SBS data. The CIP and Irish Industrial Production by Sector (Prodcom) do not include surveys to enterprises with less than 3 persons engaged. DCF data submissions attempted to estimate for the processors with less than 3 persons engaged which resulted in discrepancies in the two data sets as is evident in this report.

It should be noted that for this analysis, SBS data for 2018 was missing. 2021 data for the majority of variables excluding employment and income variables were also unavailable for analysis. In addition, SBS data does not allow for the analysis of processing enterprises by employment category. Disaggregation of variables under enterprise type unavailable due to confidentiality reasons.

[29] Over and above the data published by Eurostat, collected by the Member States in line with the European Business Statistics Regulation and Regulation (EC) No 223/2009 of the European Parliament and of the Council (15), Member States may collect additional socioeconomic data on the fish processing sector. (L253/57).

8.14 Italy

8.14.1 Overview

This document presents an analysis of the economic and social situation of the processing industry during period 2020-21, based on the data collected within the EUMAP framework, and also considering the recent developments observed in the biennium 2022-23, especially those related to the energy crisis. The report aims to provide an overview of the main trends and challenges faced by the processing industry in this period, as well as to highlight some of the best practices and opportunities for improvement.

In Italy, the number of fish processing companies whose main activity is fish processing, according to the main activity code NACE 10.20, started to increase from 2020 and stood at 467 in 2021, registering a 9% increase compared to 2019.

The number of enterprises processing fish products as integration to other type of activities is estimated, in 2021, to be equal to 204 unit, with a slight increase of 2% in 2020 in numbers. For 2021, the turnover was over EUR 566 million, down 1% from 2020.

As far as the typology of production, the Italian fish processing sector is mainly driven by the canning sector, with a share of companies around 67%, the rest being represented by companies active in the frozen food production[30].

Table 8.14.1 Overview, Italy, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	587	574	577	445	433	434	427	452	467	3%
≤10 employees	444	430	447	321	295	291	268	307	317	3%
11-49 employees	127	126	112	106	117	121	124	120	128	7%
50-249 employees	16	18	18	18	21	20	30	25	22	-12%
≥250 employees	0	0	0	0	0	2	5	0	0	0%
Employment (number)										
Total employees	6,292	5,628	5,926	5,905	5,968	6,101	6,037	6,258	6,585	5%
FTE	5,426	4,422	4,778	4,572	4,568	4,859	4,804	4,990	5,251	5%
Indicators										
Turnover (million €)	2,287	2,235	2,243	2,196	2,109	2,077	2,165	2,105	2,482	18%
FTE per enterprise	9.2	7.7	8.3	10.3	10.6	11.2	11.2	11.0	11.2	2%
Average wage (thousand €)	40.3	47.0	43.1	50.0	49.8	46.7	50.0	47.5	49.9	5%
Unpaid work (%)	8.0	8.1	8.2	7.4	5.4	5.3	5.3	4.9	4.9	-1%
Enterprises doing fish processing not as main activity										
Number of entreprises	185	205	208	208	214	207	206	210	204	-3%
Turnover attributed to fish processing (million €)	383.8	501.8	550.6	552.0	583.3	563.5	555.8	570.2	566.1	-1%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.
In 2020 and 2021, enterprises with ≥ 250 employees have been included in the class of enterprises with 50-≥ 249 for confidential issues.

The performance and the survival of the overall fishery sector, including the fish processing industry, is led by the high consumption of Italian consumers: Italy is one of the countries for which

[30] EU Fish processing sector 2019. STECF report.

the *per capita* consumption of fish over the last years has increased. Since the last EUMOFA report[31], Italy is the sixth EU country in terms of *per capita* consumption, which has been around 30 kg in 2021, increasing of around 4% compared to 2019. The composition of the *basket* of consumed seafood products is characterized, for 2021, by about 49% by fresh products (both fisheries and aquaculture). For processed seafood, 22% refers to canned consumption, 15% from packaged frozen seafood, 9% smoked seafood, and 5% frozen seafood products[32]. Canned fish, represented mainly by canned tuna, after +4.2% in 2020 registered a 7.6% drop in volumes in the first four months of 2021, therefore returning to 2019 levels. According to ANCIT (National Association of Fish Canning and Tuna Canners), in 2022 the canned tuna industry recorded a national production of 77 411 tonnes, down -7.70% compared to 2021, and the volume of the total product available for the Italian market fell to 150 660 tonness (-5%), about 2.55 kg of product per capita[33].

The change in the number of companies, which slightly increased in 2021, is due to the increase in enterprises with up to 10 employees (+3%) and those with employees between 11-49 (+7%), while the number of larger fish processing companies (50-249 employees) decreased (-12%).

The total turnover of the sector increased by 18% between 2020/21 and increased by 15% compared to 2019. After a decrease in 2020, average wages have increased again in 2021, coming back to the 2019 level. They have been calculated on the FTE and are just under EUR 50 000 per employee.

8.14.2 Economic performance

The agri-food sector in Italy achieved a remarkable performance in 2021, reaching a value of EUR 549.1 billion. This amount accounts for 15% of the country's GDP in the same year. The agribusiness system increased by 7.6% compared to 2020 and by 2.5% compared to 2019[34]. The seafood processing registered a significant growth of 18% in 2021, too, generating a turnover of EUR 2.48 billion.

The trend of the period 2013-2021 records a contraction of 8.5%, although in 2021 the values are approaching the best performance in turnover over the last five years, where, in 2019, a turnover of over EUR 2.16 billion was recorded. Regarding income diversification, also in 2021 there is an increase in income from other sources of +14% over 2019 and about 35% over the past six years. The processing sector denotes liveliness about operating subsidies that directly affect the core business of companies. They have gradually registered steady increases since 2013. In fact, the figure recorded in 2021 is 30% higher than the operating subsidies the sector received in 2008. The 2021 figure is, in addition, 50% higher than the operating subsidies in 2019, and their value has increased by 28% compared to those in 2020.

All the income items register a positive trend, and the total income recorded a +18% compared to 2020, and an increase of 35% compared to 2013. As regards general expenditures, they exceeded EUR 2.93 billion in 2021. The trend since 2013 records an increase by about +31% while a growth of +13% is recorded in respect to 2019. In percentage terms, the most incidental item (about 74%) was that of purchase of fish and other raw material for production, whose value, equal to EUR 2.2 billion, is 12.4% higher than in 2019. Labour costs (adding both wages plus salaries and unpaid) represent approximately 9% of total expenditure. Again, energy was the data that continued to grow as well as that in services, +46% over the period 2013-2021 and +13% compared to 2020. Depreciation of capital is growing, due to investment and modernization policies in technologies and infrastructures that have characterized the industry starting from 2017 with public funding to the sector. Financial costs increased by 6% compared to 2020The sector achieved positive results in 2021, with a rise in the asset value driven by higher investments. The net profit amounted to

[31] EUMOFA, Il mercato ittico nell'UE. https://www.eumofa.eu/documents/20178/521182/EFM2022_IT.pdf/6ae9f815-1fc9-d998-af97-631b3b7092af?t=1669814105638.

[32] Panel ISMEA/NIELSEN, "Consumi ittici a più di un anno dall'inizio dell'emergenza Covid19. I consumi domestici dei prodotti ittici".
https://www.ismeamercati.it/flex/cm/pages/ServeAttachment.php/L/IT/D/1%252F1%252Ff%252FD.4448f68f99f7a5eab04e/P/BLOB%3AID%3D11584/E/pdf?mode=inline

[33] Source ANCIT, 2022.

[34] Source: Annuario dell'agricoltura italiana vol. LXXV. ISBN: 9788833852331. Rome, 2022.

EUR 93.7 million, which represents a growth of +28% compared to 2020, and +79% compared to 2019. The gross value added (2021) reached EUR 422 million, showing an increase of 14% compared to 2020, and +18.4% compared to 2019.

The value of labour productivity in the sector is EUR 80.3 thousand, which represents an 8% increase from 2021 and 2020, and a 65% increase from 2013. The net profit margin of the sector also grows significantly, reaching 3% in 2021, the highest value since 2013. The same for the ROI, equal, in 2021 to 4.8%, which may not be enough to attract capital and investments in the sector but is the highest value since 2013.

Table 8.14.2 Economic performance indicators, Italy, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	2,287.3	2,234.9	2,243.0	2,195.7	2,108.5	2,076.7	2,164.7	2,105.2	2,481.8	18%
Other income	0.0	0.0	0.0	404.3	525.0	513.4	534.2	520.3	608.2	17%
Operating subsidies	5.8	4.0	6.3	0.0	4.5	4.5	5.0	5.9	7.6	28%
Total Income	2,293.1	2,238.9	2,249.3	2,600.0	2,638.0	2,594.6	2,704.0	2,631.4	3,097.6	18%
Expenditure (million €)										
Purchase of fish and other raw material for production	1,657.0	1,596.1	1,613.0	1,985.1	1,938.1	1,888.4	1,936.2	1,823.7	2,175.9	19%
Wages and salaries of staff	201.4	191.1	188.9	211.7	215.0	215.1	227.5	225.5	249.1	10%
Imputed value of unpaid labour	17.5	16.8	16.9	16.9	12.4	12.0	12.7	11.7	12.8	10%
Energy costs	81.4	79.4	78.5	141.3	103.3	100.9	104.9	101.3	119.1	18%
Other operational costs	285.0	304.2	268.0	238.2	275.6	272.4	301.6	329.5	373.2	13%
Total production costs	2,242.4	2,187.5	2,165.4	2,593.2	2,544.4	2,488.8	2,583.0	2,491.7	2,930.2	18%
Capital Costs (million €)										
Depreciation of capital	49.3	49.1	53.4		50.4	45.7	52.6	53.0	59.2	12%
Financial costs, net	27.8	30.4	26.1		17.9	16.8	16.2	13.8	14.6	6%
Capital Value (million €)										
Total value of assets	1,976.5	1,811.8	1,724.3	1,284.2	1,905.1	1,914.4	1,990.3	2,129.1	2,265.4	6%
Net Investments	-19.6	55.0	55.9	44.9	52.4	55.1	74.5	153.7	137.9	-10%
Subsidies on investments				0.0	0.0	18.0	38.8	0.0	0.0	0%
Debt	1,373.0	1,245.8	1,174.3	951.5	1,278.8	1,290.1	1,301.3	1,355.7	1,466.4	8%
Economic performance (million €)										
Gross Value Added	263.9	255.2	283.5	235.4	316.5	328.4	356.2	371.0	421.9	14%
Operating Cash Flow	50.8	51.4	83.9	6.8	93.6	105.8	120.9	139.7	167.4	20%
Earning before interest and tax	1.5	2.2	30.5	6.8	43.2	60.1	68.4	86.8	108.3	25%
Net Profit	-26.4	-28.2	4.4	6.8	25.3	43.3	52.2	73.0	93.7	28%
Productivity and performance Indicators										
Labour productivity (thousand €)	48.6	57.7	59.3	51.5	69.3	67.6	74.2	74.4	80.3	8%
Capital productivity (%)	13.4	14.1	16.4	18.3	16.6	17.2	17.9	17.4	18.6	
GVA margin (%)	11.5	11.4	12.6	9.1	12.0	12.7	13.2	14.1	13.7	
EBIT margin (%)	0.1	0.1	1.4	0.3	1.6	2.3	2.5	3.3	3.5	
Net profit margin (%)	-1.2	-1.3	0.2	0.3	1.0	1.7	1.9	2.8	3.0	
Return on Investment (%)	0.1	0.1	1.8	0.5	2.3	3.1	3.4	4.1	4.8	
Financial position (%)	30.5	31.2	31.9	25.9	32.9	32.6	34.6	36.3	35.3	

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.14.3 Breakdown by company size

The analysis of the breakdown by company size reported for 2019-2021 is provisional and omits the class for companies with more than 250 employees. In the same logic as previous years, also for this biannual report the companies that fall within >250 employees have been clustered in the previous size class (50-249) for reasons of statistical confidentiality.

In general, in absolute terms of total income, the size class with 11-49 employees contributes to 45% of the economic performance of the processing industry (year 2021), followed by the size class 50-249, which contributes with 42% and the remaining 13% the class of micro and small companies.

Net profit increased significantly for firms with <=10 and 11-49 employees, but it declined by -3% for the size class up to 250 employees from 2020. The main factors that reduced the profits of medium and large processors were service costs, especially cold logistics and medium- to long-distance transportation. Italy imports a lot of fish raw materials, so these costs affected the sector's economic performance. Smaller, often family-owned companies reorganized their supply network of raw materials for processing after the pandemic. This probably helped them cope with the large increases in transportation and logistics management costs. Some of the ways that companies managed transportation costs have been i) shipping more, less often; ii) using multiple modes of transport; iii) gaining end-to-end supply chain visibility, that is the ability to track and analyse every step, process, and touchpoint involved in the supply chain process. This supports the processing companies to identify and resolve issues, optimize performance, improve customer service, and reduce costs.

Table 8.14.3 Economic performance by company size, Italy, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	455.7	347.9	369.3	286.6	294.1	255.5	231.9	276.8	390.0	41%
Total production costs	444.2	349.8	351.7	284.6	286.5	250.2	226.1	269.2	371.3	38%
Gross Value Added	58.3	31.0	50.9	33.6	38.3	33.3	31.5	35.3	48.5	37%
Operating Cash Flow	11.4	-1.9	17.5	2.1	7.6	5.4	5.8	7.6	18.7	147%
Earning before interest and tax	-2.7	-13.0	5.2	-6.0	-0.6	-1.3	-0.1	0.6	11.9	1986%
Net Profit	-11.6	-20.2	-1.6	-7.5	-3.9	-3.6	-2.1	-1.8	9.2	607%
between 11 and 49 employees										
Total Income	1,042.9	905.0	857.5	925.2	1,183.8	1,266.7	1,136.7	1,143.2	1,404.9	23%
Total production costs	1,011.3	886.9	843.9	904.3	1,147.0	1,220.9	1,095.2	1,098.9	1,338.2	22%
Gross Value Added	127.6	99.4	86.1	94.5	122.2	134.4	123.7	128.5	165.6	29%
Operating Cash Flow	31.6	18.1	13.6	21.0	36.8	45.8	41.5	44.3	66.7	51%
Earning before interest and tax	14.4	-0.9	0.0	21.0	18.5	24.3	24.8	26.0	47.4	82%
Net Profit	3.6	-12.5	-8.1	21.0	8.9	15.4	18.1	19.4	40.9	111%
between 50 and 249 employees										
Total Income		986.0	1,022.5		1,160.1	1,072.4	813.1	1,211.4	1,302.7	8%
Total production costs		950.9	969.7		1,111.0	1,017.8	754.2	1,123.6	1,220.7	9%
Gross Value Added		124.8	146.4		156.0	160.6	143.5	27.7	33.1	19%
Operating Cash Flow		35.1	52.8		49.2	54.6	58.9	4.7	5.4	13%
Earning before interest and tax		16.1	25.4		25.3	37.1	35.9	947.6	973.1	3%
Net Profit		4.4	14.1		20.2	31.5	30.4	98.0	94.6	-3%
greater than or equal to 250 employees										
Total Income							522.3			
Total production costs							507.6			
Gross Value Added							57.5			
Operating Cash Flow							14.7			
Earning before interest and tax							7.8			
Net Profit							5.8			

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

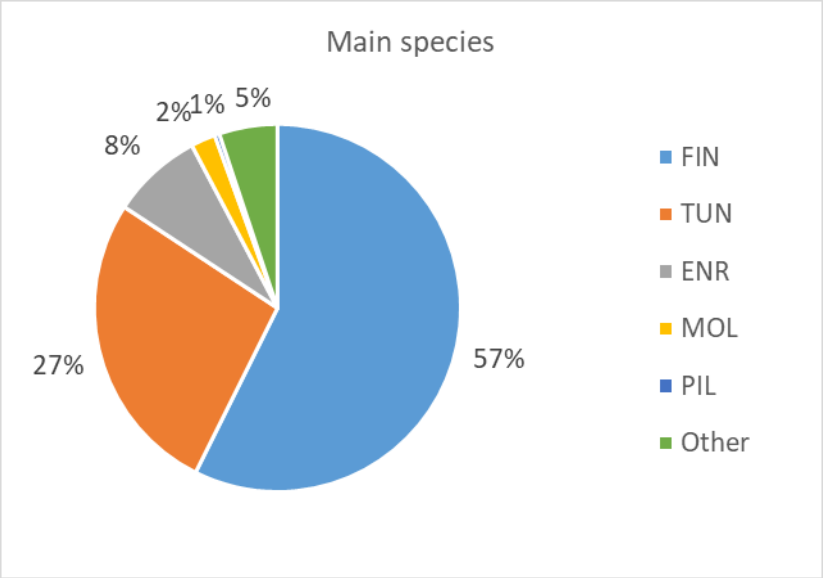
8.14.4 Socio-demographic structure

In reference to social data, there is no updated data, because the next survey already planned by the Member State is scheduled for 2024.

8.14.5 Raw materials

During 2020, the quantities produced by national fish processing companies totalled about 667 000 tonnes and of these around 35% is represented by preparations and preserves of tuna and anchovies (Eurostat Prodcom data). Turning to the volume of fishes introduced into the production cycle, tuna and anchovies (TUN and ENR) represent, indeed, 27% and 8%, respectively, of the volume of raw material. Tuna alone, (whole or in loins) represent in volume around 179 thousand tonnes of the raw materials, due to the large importance of the tuna canning industry at national level.

Figure 8.14.1 Raw materials species, Italy, 2020



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Over 63% of the raw materials processed fall within the category of finfish, FIN, different from salmon, herring, anchovies, and sardines (more than 462 thousand tonnes), processed in various forms and combined with different foods (food compositions). The large volume of finfish used as raw material, in comparison to tuna and anchovies, largely depends on the type of production carried out: finfishes are mainly used for fillet production (chilled or frozen), a typology of process characterised by less waste, if compared to products of the canning sector.

Although with significantly lower percentages, it deserves to list the other aggregates of raw materials used: molluscs (MOL, around 15.4 thousand tonnes), sardines (PIL, 2.8 thousand tonnes) and salmon (SLZ, tonnes 2.5 thousand tonnes), the latest two under the aggregate "other" in the graph. On the economic side, in 2020, the volume of fish and raw material purchase decreased by -9%, but the costs incurred decreased by -6%. Although the volumes of fish and raw materials for production were not released for 2021, the costs incurred by enterprises increased by +19% compared to 2020 and +12% compared to 2019.

8.14.6 Trends, drivers and outlook

The aim of this section is to highlight the main drivers acting during the last two years, trying to foresee the main trends affecting the Italian fish processing industry, with a special focus on the energy cost impact.

The global energy crisis has had a significant impact on the fish processing sector in Italy, which faces strong competition from other European countries and weak domestic demand.

Confindustria[35] estimates that energy costs in the Italian manufacturing sector could reach 8.8% of total production costs in 2022, compared with 3.9% in France and 6.8% in Germany. This translates into a loss of competitiveness and profitability for Italian companies, which also face rising prices for raw materials and semi-finished/ processed goods, including food and plastics for packaging. Indeed, rising natural gas, oil and coal prices have led to higher production costs and consumer prices, resulting in a contraction of household demand, which is expected to grow by only 0.2% in 2023 compared to 2022. On average, the fish processing industry experienced a slightly lower increase in energy costs than the manufacturing sector (+8.8%). Overall, in the three-year period 2019-2021, the increase in energy costs was +13%. This critical situation requires urgent action from institutions and businesses to safeguard the future of the sector.

The situation needs more attention if considering that, because of inflation, the Italian household consumption in 2022-2023 is projected to remain below 2019 levels (a change of -0.4% from the pre-Covid period). Rising food and service prices have led to a reallocation of household spending toward cheaper products[36]. This phenomenon particularly affects lower income groups, which are most affected by inflation. It is estimated that consumers will maintain a cautious attitude in 2023, but this will mainly affect the purchase of durable goods, for which credit access conditions have deteriorated, and services, which are highly dependent on real wage developments. Among services, spending on non-domestic activities is expected to decrease, and this may affect the consumption of fish out-of-home, which may slice spending in the restaurants, which is one of the main customers of the Italian fish processing industry. Regarding household spending, an average of EUR 2 625 per month was spent in 2022, up from EUR 2 415 in 2021. This increase, however, does not correspond to a higher level of consumer spending even in real terms. In fact, given the sharp acceleration in inflation recorded in 2022 (+8.7 percent change in the harmonized consumer price index), spending in real terms remains largely unchanged. Households have put in place savings strategies to cope with the sharp rise in prices in 2022, in part due to what they accumulated during the crisis years due to Covid, where the propensity to save recorded increases of more than 15%, while in 2022 the gross household savings rate fell to pre-Covid values of about 8%. In many cases, it was also a matter of changing their purchasing choices, particularly in the food sector. The 29.5% of households surveyed by ISTAT[37] in 2022, showed greater prudence in buying food not only reducing the volume (-4.3%) but choosing quality food products, that increased the value of spending by +4.6%. In addition, a contraction of retail purchases and a change in commercial channels of purchase emerged in 2022, registering a tendency to source food and beverages more from discount stores[38]. In more detail, in 2022, against the marked increase in the prices of food and non-alcoholic beverages (+9.3%), household spending on the purchase of these products increased by 3.3% compared to 2021 Seafood products are the only segment, among all, to mark a concrete reduction in spending against volumes with declines of up to 30%.

In 2022, seafood products recorded a 3.4% contraction in consumption[39], led by the significant contraction of about 7% in fresh seafood. The segment of smoked processed fish products was also affected by contraction, amounting to about -0.8% performed by frozen processed products (-3.6%). The product that finds wide consumer confirmation in Italy remains canned tuna whose volumes recorded +0.8% for an increase in spending of +5.5% compared to 2021, although the

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[35] Confindustria, focus on Italian energy costs. https://www.confindustria.it/home/centro-studi/temi-di-ricerca/tendenze-delle-imprese-e-dei-sistemi-industriali/dettaglio/impatto-prezzi-energia-sui-costi-di-produzione-settori-a-confronto-italia-francia-germania.

36 Centro Studi Confindustria, Rapporto di previsione "L'economia italiana tra rialzo dei tassi e inflazione alta - primavera 2023". https://www.confindustria.it/home/centro-studi/prodotti/previsioni/rapporto/highlights/rapporto-previsione-economia-italiana-primavera-2023/3188cf21-92c2-414d-8cad-6eaeb59f2ce1.

[37] Report "Spese per consumi delle famiglie". https://www.istat.it/it/files//2023/10/REPORT_CONSUMI_2022.pdf

[38] Among the different types of sales points, the supermarket is confirmed as the channel most chosen by consumerswith a 40% market share and with positive growth which allows it to increase by 2% compared to the pre-Covid period. Discount has an Italian market share of 22% and recorded an increase of 4% compared to 2019 and an increase in turnover of almost 25%.

[39] ISMEA Report "I consumi alimentari delle famiglie" (2022). https://www.ismeamercati.it/flex/cm/pages/ServeAttachment.php/L/IT/D/1%252F7%252F9%252FD.6e5b3c967cddf442a104/P/BLOB%3AID%3D12367/E/pdf?mode=inline

average consumer price increased by 4.6%. For salmon, still considered by Italian consumers as a luxury good, a reduction in the volumes purchased by households (-31.7%) is recorded probably due to the increase of about 25.7% in the market price, which reduced spending by 14% compared to 2021.

As far as the current year 2023[40], the seafood market seems to show a recovery after the decline in 2022. The demand for fresh seafood is responsible for this positive trend, with a share of over 50% of the total volume and 3.1% growth compared to 2022. However, fresh seafood prices rose, leading to an 8.2% increase in overall spending. In contrast, frozen fish products and canned fish suffered a sharp contraction, with volume drops of -8% and -8.1% respectively. In general, for all categories of processed fish products, for the first nine months of 2023, increases in spending were recorded against a contraction in purchased volumes.

8.14.7 Data coverage and quality

Data submitted for the years 2020 and 2021 are consistent with the previous data series. Data fo the size class with more than 250 employees has been aggregated with the previouse one, for confidentiality issues, due the low number of companies (<=3) Dat on raw material by volume were submitted only for 2020, because of delay in the start of the National programme of data collection.

40 ISMEA Report "I consumi alimentari delle famiglie" (2023). https://www.ismeamercati.it/flex/cm/pages/ServeAttachment.php/L/IT/D/1%252F2%252Ff%252FD.116331cbca5ab7e64682/P/BLOB%3AID%3D12795/E/pdf?mode=inline.

8.15 Latvia

In 2021, there were 96 enterprises whose main activity was fish processing in Latvia (Table 8.15.1). Compared to the previous year the total number of enterprises increased by 5 (5%). The total number of persons employed in the Latvian fish processing industry was 2 776, corresponding to 2 567 FTEs. Compared to 2020, the total number of persons employed and FTEs increased 5% and 9% in 2021, respectively.

The total income was EUR 238.2 million in 2021, increasing 5% compared to 2020. The value of total purchases of goods and services increased 6% to EUR 189.3 million. The personnel costs were EUR 34.9 million increasing 16% compared to previous year.

Comparing the economic performance indicators between 2020 and 2021, then GVA increased by 1% to EUR 50.6 million in 2021. Gross profit underwent a fall (29%) and reached to EUR 15.7 million.

Table 8.15.1 Overview, Latvia, 2008-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	111	111	112	115	112	108	106	91	96	5%
Total persons employed	6,225	5,756	4,258	3,804	3,521	3,249	2,921	2,643	2,776	5%
Unpaid labour	8	44	88	63	43	63	33	18	33	83%
FTE	4,791	5,282	3,588	3,258	3,125	2,911	2,507	2,360	2,406	2%
Income, expenditure and investments (million €)										
Production value	224.0	209.7	156.0	148.8	173.9	188.3	195.8	220.5	233.4	6%
Turnover										
Total income	254.6	228.1	169.0	153.0	183.2	198.5	209.4	225.8	238.2	5%
Total purchases of goods and services	201.8	182.8	131.4	121.7	152.6	160.9	170.3	179.0	189.3	6%
Personnel costs	36.5	36.1	27.3	25.5	27.8	29.8	28.7	30.0	34.9	16%
Gross investment in tangible goods	17.1	10.1	8.7	4.4	4.8	7.7	10.3	6.3	5.4	-14%
Economic performance (million €)										
Gross Value Added	59.7	52.6	44.5	39.3	34.8	41.3	44.4	50.3	50.6	1%
Gross profit	23.2	16.5	17.2	13.8	7.0	11.5	15.7	20.3	15.7	-23%

Source: Eurostat, 2023

The majority (85%) of Latvian fish processing enterprises are small, as their average number of employees is less than 50. According to the official statistics of Latvia[41], there are many different types of fisheries products made in Latvia, including frozen, salted, and smoked products, preserves, ready to serve products, and canned fish. The share of turnover in domestic market of Latvian fish processing industry was 21% in 2021.

The overall economic situation in the sector was good in 2021. Both exports and sales to the domestic market increased. GVA increased by 1%. However, there was a fall in Gross profit, which can be explained by the increase in personnel costs.

Since Ukraine has been an important export partner for Latvian fish processing industry, it could be assumed that the Russian invasion to Ukraine has a negative effect on exports. According to the data of the official statistics of Latvia, the value of exports almost doubled (88%) instead of that in 2022 because the demand for the prepared or preserved fish product group increased dramatically.

[41] https://stat.gov.lv/en.

However, the military activity has an increasing effect on production costs through rising energy and raw material prices.

Table 8.15.2 Main economic performance indicators by company size, Latvia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
From 0 to 9 persons employed										
Enterprises	52	54	57	60	65	63	64	49	51	4%
Production value	4	3.6	4.3	2.7	5.2	7.1	8.3	11		-100%
Turnover or gross premiums written	3.8	3.6	3.7	3	5	7	8.2	10.4		-100%
Value added at factor cost	0.9	0.6	0.9	0.6	0.6	1.2	1.6	1.7		-100%
Gross operating surplus	0.5	0.2	0.4	0	0	0.5	0.7	0.8		-100%
From 10 to 19 persons employed										
Enterprises	12	10	13	14	8	7	7	9	13	44%
Production value	10.9	7.0	7.2	8.2	6.8	7.5	7.4	9.8	13.0	32%
Turnover or gross premiums written	10.6	7.1	7.2	8.6	7.3	7.8	7.9	9.9	13.4	35%
Value added at factor cost	2.3	1.9	1.4	1.9	2.3	1.3	1.3	1.6	1.6	0%
Gross operating surplus	1.4	1.3	0.6	0.8	1.5	0.6	0.7	0.8	0.2	-78%
From 20 to 49 persons employed										
Enterprises	23	25	23	23	20	23	21	20	18	-10%
Production value	33.4	41.6	36.7		32.8	35.5	34.2	38.0	30.4	-20%
Turnover or gross premiums written	32.7	42.0	37.2		33.8	38.2	40.1	42.4	33.4	-21%
Value added at factor cost	10.2	9.0	11.0		9.8	11.6	9.8	11.3	8.1	-28%
Gross operating surplus	6.5	4.5	6.4		5.4	5.4	4.4	5.7	2.4	-57%
From 50 to 249 persons employed										
Enterprises	17	14	14	17	17	13	12	12	13	8%
Production value	69	45.3		91.5						
Turnover or gross premiums written	84.8	47		92.6						
Value added at factor cost	15.7	7.3		22.9						
Gross operating surplus	3.5	-1.3		6.1						
250 persons employed or more										
Enterprises	7	8	5	1	2	2	2	1	1	0%
Production value	106.8	112.1								
Turnover or gross premiums written	122.6	128.4								
Value added at factor cost	30.6	33.8								
Gross operating surplus	11.3	11.8								

Source: Eurostat, 2023

Data coverage and quality

No data were submitted by Latvia in this data call. For that reason, the EWG prepared this section based on Eurostat's Structural Business Statistics data, which are publicly available.

8.16 Lithuania

8.16.1 Overview

In 2021, Lithuanian fish processing industry consisted of 45 enterprises with main activity of fish processing. Number of enterprises in the sector decreased by 8% compared to 2020, mainly because of closure of small companies with 10 or less employees. The total income from Lithuanian processing industry, consisting of turnover from processing, other income, and operating subsidies, in 2020 decreased by 2% for the first time since 2016, most likely due to COVID19 restrictions. However, in 2021 total income increased by 5% to EUR 621.8 million.

The number of fish processing companies with non-main activity in 2021 consisted of 42 enterprises and compare to 2020 remained almost unchanged, whereas turnover, attributed to non-main activity fish processing enterprises in 2021 increased by 39.5% to EUR 15.3 million.

Lithuanian processing industry is highly dependent from imported raw material. In 2021, around 94.9% (101.9 thousand tonnes) of total quantity of raw material was imported. Around 97.5% of processed raw material in 2021 was supplied from marine fisheries whereas only 2.5% from freshwater sector, mainly aquaculture.

Table 8.16.1 Overview, Lithuania, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	30	34	51	42	39	42	40	49	45	-8%
≤ 10 employees	0	3	20	14	12	17	13	17	14	-18%
11-49 employees	14	14	12	11	11	10	11	16	15	-6%
50-249 employees	11	11	12	11	10	9	10	10	11	10%
≥ 250 employees	5	6	7	6	6	6	6	6	5	-17%
Employment (number)										
Total employees	4,471	5,165	5,373	4,743	4,855	4,815	5,115	5,106	5,153	1%
FTE	3,502	3,868	4,132	3,673	3,744	3,870	3,706	3,861	3,946	2%
Indicators										
Turnover (million €)	319	419	443	457	504	512	570	561	571	2%
FTE per enterprise	116.7	113.8	81.0	87.5	96.0	92.1	92.6	78.8	87.7	11%
Average wage (thousand €)	10.4	10.7	9.0	13.1	14.0	15.1	17.4	16.4	18.1	10%
Unpaid work (%)	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	-59%
Enterprises doing fish processing not as main activity										
Number of entreprises	6	6	21	31	23	33	33	43	42	-2%
Turnover attributed to fish processing (million €)	5.3	7.2	9.7	10.7	3.9	4.8	9.2	10.9	15.3	40%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

In 2021, Lithuanian companies with main activity of fish processing produced 151 thousand tonnes of production, 14% more than in 2020. The largest commodities in terms of volume, produced by Lithuanian fish processing industry were surimi and smoked fish including smoked fillets, contributing to the total weight of production by 29% and 24% respectively. However, value of production was significantly higher for smoked fish and smoked fillets, contributing by 47% of total production value, compare to 16% coming from surimi production. Furthermore, production quantities of frozen fillet have a tendency to increase, while smoked fish production declining. Concerning production structure by species, the most important in 2021 was Atlantic salmon, which contributed by 63% of total production value and 42% of total production weight. Around 10% of total production weight was from processed Atlantic herring (mostly salted in brine) and 11% from Atlantic cod (mostly frozen fillets).

In 2021, value of sales in the internal market increased by 20% to EUR 246 million, compared to EUR 204 million in 2020. In 2021, following the growth of sales in the internal market, exports

decreased by 16% to EU 268.5 million. Around 80% of exported production was sold in EU countries, which was down from 83% from 2020. Part of it is because of Brexit, as around 6.3% of the processed fish from Lithuania is exported and re-exported to UK. Lithuanian processing industry employed 5 153 employees in 2021 and compared to 2020 the number of employees increased by 1%. In terms of FTE, 2021 data shows increase of 2% to 3 946. An increasing trend of average wage from 2008 continues in 2021, which, compared to 2020, increased by 10%.

8.16.2 Economic performance

Total revenues, generated by Lithuanian fish processing industry increased by 5% in 2021 to record high EUR 621.8 million. However, due to effects of COVID19 restrictions on fish processing in Lithuania, total income in 2020 for the first time since 2016 has a decreased, amounting to EUR 592.4 million.

Table 8.16.2 Economic performance indicators, Lithuania, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	318.7	419.2	443.1	457.0	504.2	512.2	570.0	560.6	570.8	2%
Other income	44.2	66.3	78.2	35.7	44.0	52.6	33.2	31.7	49.9	57%
Operating subsidies	0.0	0.0	0.8	0.0	0.1	0.1	0.2	0.1	1.1	786%
Total Income	362.9	485.5	522.1	492.8	548.3	564.9	603.4	592.4	621.8	5%
Expenditure (million €)										**0%**
Purchase of fish and other raw material for production	222.6	305.5	341.4	361.8	368.9	368.0	405.1	381.1	407.5	7%
Wages and salaries of staff	36.4	41.5	37.3	48.1	52.3	58.3	64.4	63.3	71.4	13%
Imputed value of unpaid labour	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	-54%
Energy costs	7.1	8.1	7.6	7.1	8.1	7.9	8.1	7.6	9.2	21%
Other operational costs	61.4	109.3	85.1	79.8	73.1	78.2	80.8	87.8	92.4	5%
Total production costs	327.6	464.4	471.4	496.8	502.4	512.5	558.4	539.8	580.5	8%
Capital Costs (million €)										0%
Depreciation of capital	22.6	8.5	10.1	9.0	8.8	9.7	10.9	12.9	13.1	2%
Financial costs, net	1.9	1.7	3.1	-0.9	3.0	0.1	-0.2	2.2	0.1	-95%
Capital Value (million €)										0%
Total value of assets	193.6	231.5	243.4	252.5	302.1	286.6	292.9	286.8	281.4	-2%
Net Investments	19.3	17.5	4.7	7.1	6.5	11.9	18.0	2.2	10.1	352%
Subsidies on investments				0.1	0.1	0.8	0.3	0.1	0.2	31%
Debt	135.5	148.5	161.2	174.3	166.1	173.2	166.0	145.1	156.4	8%
Economic performance (million €)										0%
Gross Value Added	71.8	62.6	87.3	44.1	98.1	110.7	109.2	115.8	111.6	-4%
Operating Cash Flow	35.3	21.1	50.7	-4.1	46.0	52.4	45.0	52.6	41.2	-22%
Earning before interest and tax	12.7	12.6	40.6	-13.0	37.2	42.8	34.0	39.7	28.1	-29%
Net Profit	10.8	10.9	37.5	-12.2	34.1	42.7	34.3	37.5	28.0	-25%
Productivity and performance Indicators										0%
Labour productivity (thousand €)	20.5	16.2	21.1	12.0	26.2	28.6	29.5	30.0	28.3	-6%
Capital productivity (%)	37.1	27.1	35.9	17.5	32.5	38.6	37.3	40.4	39.6	
GVA margin (%)	19.8	12.9	16.7	8.9	17.9	19.6	18.1	19.5	18.0	
EBIT margin (%)	3.5	2.6	7.8	-2.6	6.8	7.6	5.6	6.7	4.5	
Net profit margin (%)	3.0	2.2	7.2	-2.5	6.2	7.6	5.7	6.3	4.5	
Return on Investment (%)	6.6	5.4	16.7	-5.2	12.3	14.9	11.6	13.8	10.0	
Financial position (%)	30.0	35.8	33.7	30.9	45.0	39.6	43.3	49.4	44.4	

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Turnover from fish processing in 2021 increased by 2% and was 30% higher compared to 2011-2020 multiannual average, whereas other income recovered by 57% to pre-pandemic level. Due to the support regarding COVID-19 impact, operating subsidies were all time high, reaching EUR 1.1 million.

Structure of total production costs remained consistent during the period of 2011-2021. Purchase of raw material in 2021 accounted for 70% of total production costs and compared to 2020 increased by 7%. Wages and salaries accounted for 12% with 13% of annual increase, whereas energy costs in 2021 accounted only for 2% of total production costs, with increase of 21%, compared to 2020. Other operational costs accounted for 16% of total production costs and increased by 5%. Despite the largest increase of energy costs since 2011 (2011-2020 multiannual period average increase was 4%), the main drivers affecting the decline of profitability indicators in 2021 were the increase in costs of raw material and personnel costs.

Fish processing sector in 2021 generated EUR 111.6 million of GVA and decreased by 4% compared to 2020, mainly due to the rise of raw material cost. However, it was still 34% higher than multiannual 2011-2020 GVA average. In 2022, GVA rose by 8% to record high EUR 120.6 million. Labour productivity decreased by 6% in 2021 to EUR 28.3 thousand GVA/FTE. Net profit generated by processing industry was EUR 28 million in 2021 and compare to 2020 it declined by 25% due to growth of raw material and labour costs. However, it was 8% higher than multiannual 2011-2020 net profit average. Net profit margin in 2021 was 4.5% and declined from 6.3% in 2020 and was at lowest since 2016. Decrease of the net profit margin in 2021 was associated with growth of main operating costs, as raw material and wages respectively increased by 7% and 13% in 2021.

8.16.3 Breakdown by company size

Fish processing enterprises, employing more than 250 persons. Economic performance of Lithuanian fish processing sector is mostly represented by large-scale enterprises. Companies, employing more than 250 people in 2021 generated 74% of total national turnover and 55% of total persons employed. Compared to 2020, total income for this enterprise segment increased by 1% to EUR 458 million. In 2021, companies with more than 250 employees generated EUR 70.63 million GVA and EUR 16.9 million net profit with 17% and 46% annual decline respectively. Net profit margin decreased to 3.7% which is 34% lower than 2011-2020 multiannual average. In 2021 around 70% of total operating costs in this segment was spent on purchase of fish and other raw materials, 11% on wages and salaries, whereas energy costs contributed only 1.2%. The decline in profitability was related to the increasing prices of raw materials and growth of remuneration costs when turnover from fish processing decreased by 2%. Compared to 2020, the average price of raw materials increased by 4% and was 19% higher than 2011-2020 multiannual average. Average annual wage increased by 17% to EUR 20.3 thousand per FTE in 2021. Companies in this size category employed 2 817 employees corresponding to 2 184 FTE.

Fish processing enterprises, employing 50-249 persons. In 2021, this segment contributed by 22% to the national turnover from fish processing industry. Compared to 2020, total income increased by 17.8% to EUR 137.7 million. Segment generated EUR 35 million GVA and EUR 8.8 million net profit in 2021 and compare to 2020 GVA and net profit increased by 39% and 106% respectively. The largest share of total expenses was related to purchases of raw material and personnel costs, contributing by 66% and 18% respectively. In 2021 the average price of raw material increased by 11% compared to 2020 and was 21% higher than 2011-2020 multiannual average. Average annual wage increased by 5% to EUR 16.2 thousand in 2020 and higher number of employed FTE resulted in 30% growth of personnel costs in the segment. However, by 16% increase in turnover and by 45% in other income resulted 6.4% net profit margin. Number of employees increased by 18% to 1876 persons corresponding to 1 428 FTE in 2021.

Fish processing enterprises, employing 11-49 persons. Fish processing enterprises in this segment generated EUR 24.5 million total income with 8% increase compared to 2020. In 2021, GVA remained unchanged from 2020 – EUR 5.6 million, whereas net profit increased by 40% to EUR 2.3 million. Around 66% of total operating costs in this segment was spent on purchase of fish and other raw materials, 16% on wages and salaries, whereas energy costs contributed only by 4%. Increase in net profit was mostly resulted from other income, 72% increase from 2020. Average

annual wage in companies employing 11-49 people increased by 4% to EUR 12.4 thousand in 2021. Companies in this segment employed 388 persons corresponding to 287 FTE. Compared to 2020, number of employees increased by 1%, whereas FTE improved by 5%.

Fish processing enterprises, employing less than 10 persons. The small-scale processing enterprises generated EUR 1.5 million total income in 2021 with 8% decrease compared to 2020. Segment generated EUR 0.4 million GVA in 2021 with 6% increase compared to 2020. After obtaining net loss in 2019-2020, enterprises employing less than 10 persons generated EUR 0.05 million net profit, partly affected by the decline of 10% in personnel costs and 23% in other operational costs. Concerning purchase of raw materials, it has a tendency to increase as in other segments, in the case of small-scale industry – by 18% in 2021. Energy costs contributed by 4.5% of total operating costs and increased by 20% compared to 2020. Average annual wage in companies less than 10 employees decreased by 35% to EUR 5.9 thousand in 2021. Number of employees increased by 38% to 72 persons, corresponding to 47 FTE.

Table 8.16.3 Economic performance by company size, Lithuania, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	0.0	0.6	1.9	2.4	1.8	2.2	2.2	1.4	1.5	8%
Total production costs	0.0	0.5	1.7	2.4	2.1	2.1	2.2	1.4	1.4	2%
Gross Value Added	0.0	0.1	0.4	0.3	0.0	0.5	0.6	0.4	0.4	6%
Operating Cash Flow	0.0	0.0	0.2	0.0	-0.3	0.1	0.0	0.0	0.1	268%
Earning before interest and tax	0.0	0.0	0.2	-0.1	-0.3	0.0	0.0	0.0	0.1	-442%
Net Profit	0.0	0.0	0.2	-0.1	-0.6	0.0	0.0	0.0	0.0	-282%
between 11 and 49 employees										
Total Income	14.3	15.4	14.7	15.4	17.2	17.6	17.1	21.1	24.5	16%
Total production costs	12.7	14.0	12.3	13.2	14.4	15.8	15.8	18.9	21.5	14%
Gross Value Added	4.5	4.5	3.8	3.9	4.5	3.8	3.6	5.5	5.6	0%
Operating Cash Flow	1.7	1.4	2.4	2.2	2.8	1.8	1.3	2.3	2.9	29%
Earning before interest and tax	1.1	1.1	2.0	1.8	2.4	1.4	0.8	1.6	2.3	39%
Net Profit	1.1	1.0	2.0	1.7	2.3	1.3	0.8	1.6	2.2	40%
between 50 and 249 employees										
Total Income	85.6	115.9	134.9	105.2	112.4	87.7	95.0	117.0	137.7	18%
Total production costs	57.3	93.9	111.2	112.5	109.4	81.8	92.2	109.4	125.7	15%
Gross Value Added	35.5	30.5	32.8	5.2	17.7	21.6	21.6	25.2	35.0	39%
Operating Cash Flow	28.3	22.1	23.7	-7.3	3.0	5.8	2.8	7.6	12.0	58%
Earning before interest and tax	11.0	19.5	20.5	-9.6	1.1	3.6	0.3	4.8	9.2	91%
Net Profit	9.9	19.0	19.4	-10.4	-0.4	3.1	0.0	4.3	8.8	106%
greater than or equal to 250 employees										
Total Income	263.0	353.6	370.6	369.8	416.9	457.4	489.1	452.8	458.1	1%
Total production costs	257.7	356.0	346.2	368.7	376.5	412.7	448.2	410.2	431.9	5%
Gross Value Added	31.8	27.5	50.3	34.7	76.0	84.8	83.4	84.7	70.6	-17%
Operating Cash Flow	5.4	-2.4	24.3	1.1	40.4	44.7	40.8	42.7	26.2	-39%
Earning before interest and tax	0.6	-8.1	17.9	-5.1	34.1	37.8	32.9	33.2	16.6	-50%
Net Profit	-0.2	-9.1	15.9	-3.4	32.7	38.4	33.5	31.6	16.9	-46%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.16.4 Socio-demographic structure

In 2021, the around 68% of employees involved in Lithuanian fish processing industry were female followed by 32% male. This tendency of gender distribution is steady during long term period and similar among the different segments (size categories). For example, in large companies (250<

and 50-249) female workers were accounted for 69% of total employees, whereas in smaller units (11-50 and <10) was 61% of female and 39% of male employees.

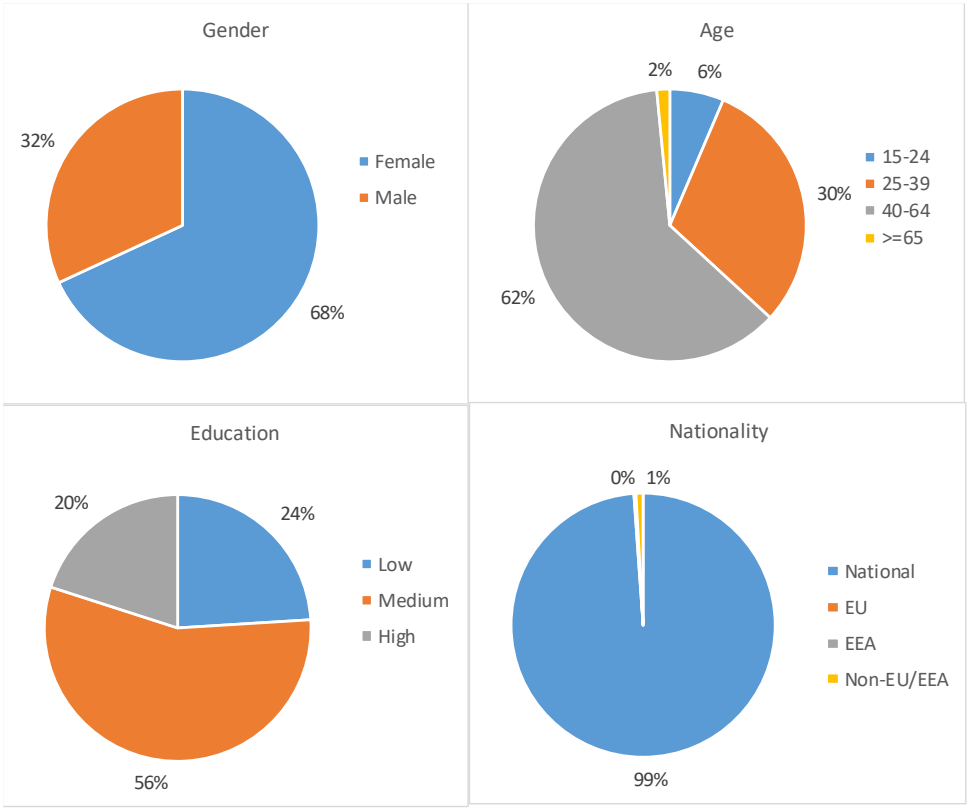
The age groups used during the data collection were 15-24, 25-39, 40-54, 55-64 and >= 65. In 2021 the dominant age class for the industry was 40-54 corresponding to 45% of total employees, second largest age class was 25-39 with 29% of total population.

Employment status has a dependence on the size of the company. For example, in the enterprises employing less than 10 persons, around 78% of personnel work in the industry is considered as the main work, whereas 12% unpaid labour (owners of small scale processing units). For the rest segments of fish processing industry 98% of personnel worked full time in the fish processing enterprises as the main work.

Based on 2020 data, in Lithuanian fish processing sector, the medium education was dominant among employees with 56% of total employees, whereas labour with low and high education was with similar proportion – 24% and 20% respectively.

Around 99% of total employees had a Lithuanian nationality. Comparing 2020 to 2017 social data, distribution of employees by gender, age, employment and nationality was very similar, without noticeable change.

Figure 8.16.1 Socio-demographic characteristics, Lithuania, 2020



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.16.5 Trends, drivers and outlook

The main drivers for economic performance of fish processing industry at the cost level were supply and price of raw material and labour costs, whereas at the income level – recovery of sales after COVID19 pandemic crises, demand for exports of final production and increasing consumption of fishery products in the internal market. Enterprises carrying fish processing as not main activity show an increasing trend of production recently. It consists mainly of aquaculture companies which diversify its production to the semi-prepared or processed products for consumption. In 2021, turnover attributed to fish processing for these companies increase to a record high EUR 15.3 million – 40% increase from 2020 and 123% higher compared to 2011-2020 multiannual average.

However, in 2022, trend of increase in turnover from enterprises doing fish processing not as main activity shows signs of stabilisation.

Based on Lithuanian Agricultural and Food Product Market Information System (LAFPMIS) data, in 2022 total income of fish processing industry with a main activity increased by 7% to EUR 664 million. Costs for raw material increased by 4% compared to 2021, crew wages grew by 8%, whereas energy costs, due to the war in Ukraine and following energy crises, increased by 70%. However, for total industry, energy costs contribute to total operating costs only by 2%, but it varies considerably depending by processing activity. Increase in energy prices indirectly affected profitability of fish processing industry, mostly by increased transportation costs, shipments of raw material (reflected in the price of raw material), increased price of packaging material. Based on preliminary data, net profit in 2022 increased by 18% to around EUR 33 million. Rise of net profit was influenced by the increase (around 13%) of average prices of sold production and decline in capital consumption. According to preliminary data, income from fish processing industry with main activity in 2023 is expected to increase by 3%, while processed quantity could decrease up to 9%. Correspondingly prices of processed fish produce will further increase during 2023, affected by high inflation in Lithuania, further growth of wages (minimum wage is expected to rise in 2024) and increases of raw material prices.

In 2021, fish processing industry processed around 2.7 thousand tonnes raw material from local aquaculture production and compared to 2020 it surged by 34%. However, in 2022 raw material processed by aquaculture farms decreased by 21%, compared to 2021. It is projected that raw material from local aquaculture companies will increase by 12% in 2023. Aquaculture raw material is mostly processed by the companies which processing is not main activity, mostly aquaculture farms which has fish processing facilities. Produce from aquaculture for fresh market consumption is limited, therefore most of increase of aquaculture production is dedicated for fish processing. The biggest part of local raw material from aquaculture were carps – 2 115 tonnes, rainbow trout – 734 tonnes and African catfish - 657 tonnes.

The most important species in terms of value is Atlantic salmon, which contributes by 62.7% of total value of processed production. Raw material is imported, mainly from Sweden (82% of total imports of fresh salmon). In 2021, industry imported 39 thousand tonnes of fresh salmon, 6% decrease from 2020. Average price in 2021 increased also by 6% to 5.64 EUR/kg. In 2022, average import price of fresh salmon increased by 38% following by 4% decline of import quantities. Based on preliminary data in 2023 average price increased further by 5% to 8.02 EUR/kg. Overall import of fish production in 2022 decreased by 0.4% to 149 thousand tonnes, whereas value of imported production increased by 30.4%.

The growth of export of surimi products is slowing down. In 2019, exports of surimi products grew by 17%, however in 2021 the growth of exports slowed down to 5%, reaching total of 41 thousand tonnes. In 2022, the growth further decreased to 1%, compared to 2021, and by preliminary data, in 2023 exports of surimi products will decline by another 5%. Alternatively, the price of surimi products grew by 5% in 2021, and by 15% in 2022. Export of salted and smoked salmon (CN 0305 41) increased by 4% in 2021 but declined by 9% in 2022, with a tendency of further decrease by 29% in 2023. Average export price for salted and smoked salmon increased from 13.01 EUR/kg in 2021 to 16.57 EUR/kg in 2022, with a tendency to increase by 9% in 2023.

8.16.6 Data coverage and quality

Population of commercial fish processing units for data collection is derived from Lithuanian State Food and Veterinary Service, register of entities, producing food of animal origin, activity fish processing. Data collection scheme is census for all enterprises, which have a veterinary number and licence to produce fishery products. Based on production NACE code enterprises are divided to main activity (NACE code 10.20) and non-main activity of fish processing. Semi-annual production report contains information on used raw material by species, and origin, whereas production section disaggregated by type of product, species, weight and value as well as employment. For the main activity enterprises, income from fish processing and income from other activities are distinguished separately. From 2015 increase in size of sector was mainly due to the higher number of small fish processing units (size category less than 10 employees) included into Register of State Food and Veterinary Service according to new requirements to obtain veterinary number and permission to

carry out fish processing activities. The 2022 economic data and production from processing industry as well as preliminary 2023 production data is provided using LAFPMIS data source. The same data source is used for reporting data to STECF.

8.17 Malta

8.17.1 Overview

The Maltese fish processing industry is relatively small, whereby enterprises mainly partake in the preservation and processing of tuna, sardines, and other marine fish. Malta also has other enterprises that do not treat fish processing as their main operation but still contribute to this industry. The number of firms and their contributions are significantly small. The industry is mainly composed (71%) of enterprises with ≤10 employees, the smallest enterprise segment.

In 2020 and 2021, the number of enterprises in the Maltese fish processing industry was 7. An increase over the rather constant industry size of 5 recorded since 2015. In 2020, the industry generated EUR 40 million in turnover, a 40% increase over 2019. However, this may not necessarily be entirely indicative of the industry's performance improvement but rather the contribution of the new enterprises that entered the sector. Viewing turnover by segment gives a clearer picture of this. The size increase occurred in the ≤10 employees segment; within this segment, turnover increased by 52% in 2020 over 2019. Taking into account the stable turnover seen in previous years (2013–2019) and indicators like the average turnover per enterprise, it is clear that the rise in enterprises is what caused turnover to increase in 2020. On the other hand, the 11-49 employee segment turnover in 2020 increased by 32%, even though segment size remained constant over the previous years at 2. Having said all this, it would be fair to determine that the overall increase in industry turnover derives from a point increase in sales and an increase in size. In 2021, it should be noted that the entire industry bounced back from constraints imposed by the COVID-19 pandemic and registered an overall turnover of EUR 47 million.

Table 8.17.1 Overview, Malta, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	6	6	5	5	5	5	5	7	7	0%
≤ 10 employees	3	3	3	3	3	3	3	5	5	0%
11-49 employees	3	3	2	2	2	2	2	2	2	0%
50-249 employees	0	0	0	0	0	0	0	0	0	0%
≥ 250 employees	0	0	0	0	0	0	0	0	0	0%
Employment (number)										
Total employees	114	114	82	85	85	74	80	97	112	15%
FTE	109	109	71	72	72	72	77	94	110	17%
Indicators										
Turnover (million €)	46	36	23	23	24	24	28	40	47	19%
FTE per enterprise	18.2	18.2	14.2	14.4	14.4	14.4	15.4	13.4	15.7	17%
Average wage (thousand €)	22.9	26.2	31.8	32.4	33.0	25.3	25.3	20.7	22.1	7%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity										
Number of entreprises	0	2	2	2	2	4	4	4	4	0%
Turnover attributed to fish processing (million €)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	38%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

FTE and employment have followed similar trends in 2020 and 2021. The increase in the number of enterprises fully contributed to the increase in the industry's FTE. In 2020 and 2021, the number of people employed in fish processing was 97 and 112, respectively. These are equivalent to 94 and 110 FTEs, respectively. The ever-present trend that the industry employs most of its labour force on a full-time basis remained prevalent over these two years as well. The increase in employment and FTE in 2021 indicates that the industry bounced back quickly post-pandemic in terms of re-uptaking its workforce. At the same time, the average workforce is yet to recover to

pre-pandemic levels, as the average wage in 2021 is still 13% lower than in 2019. The fish processing industry in Malta continues to not engage in any form of unpaid employment.

The industry continues to register net profits following the shift in trend recorded in 2018. In 2020 and 2021, the industry recorded net profits of EUR 4.5 million and EUR 3.3 million, respectively. Factors such as the growth in industry size, signs of resilience, and quick recovery post-pandemic are the driving factors for these increases. This improvement also resulted in further improvements to the industry's GVA, which was valued at EUR 7.1 million and EUR 6.5 million in 2020 and 2021, respectively.

8.17.2 Economic performance

Purchases of raw materials for production is the main cost component of the industry, as this variable consistently makes between 85% to 89% of the cost structure, followed by wages, energy costs and other operational costs respectively.

Table 8.17.2 Economic performance indicators, Malta, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	46.2	35.6	22.7	23.5	24.1	23.8	28.5	39.9	47.3	19%
Other income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-25%
Operating subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Total Income	46.2	35.6	22.7	23.5	24.1	23.8	28.5	39.9	47.3	19%
Expenditure (million €)										
Purchase of fish and other raw material for production	27.1	31.2	20.3	21.1	21.6	21.8	23.3	30.8	38.4	25%
Wages and salaries of staff	2.5	2.9	2.3	2.3	2.4	1.8	1.9	1.9	2.4	25%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	0.3	0.3	0.2	0.4	0.4	0.4	0.4	0.7	1.0	45%
Other operational costs	2.1	1.6	0.9	1.0	1.0	1.1	1.0	1.3	1.5	14%
Total production costs	32.0	35.9	23.7	24.7	25.3	25.1	26.6	34.7	43.3	25%
Capital Costs (million €)										
Depreciation of capital	0.4	0.5	0.3	0.3	0.4	0.4	0.5	0.7	0.8	14%
Financial costs, net	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17%
Capital Value (million €)										
Total value of assets	15.4	12.3	7.5	7.6	7.8	8.6	8.3	9.8	10.8	11%
Net Investments	1.3	0.9	0.3	0.3	0.3	0.3	0.2	0.3	0.3	-16%
Subsidies on investments				0.0	0.0	0.0	0.0	0.0	0.0	0%
Debt	16.6	13.8	9.5	8.6	8.5	8.2	7.6	6.6	6.5	-2%
Economic performance (million €)										
Gross Value Added	16.7	2.6	1.2	1.1	1.1	0.6	3.8	7.1	6.5	-9%
Operating Cash Flow	14.2	-0.3	-1.0	-1.2	-1.2	-1.2	1.8	5.2	4.1	-21%
Earning before interest and tax	13.8	-0.8	-1.3	-1.5	-1.6	-1.7	1.4	4.5	3.3	-27%
Net Profit	13.9	-0.7	-1.3	-1.6	-1.6	-1.7	1.3	4.5	3.3	-27%
Productivity and performance Indicators										
Labour productivity (thousand €)	153.2	23.5	17.5	15.6	15.7	8.3	49.3	76.0	59.4	-22%
Capital productivity (%)	108.1	20.8	16.6	14.8	14.5	7.0	45.8	73.3	60.4	
GVA margin (%)	36.2	7.2	5.5	4.8	4.7	2.5	13.3	17.9	13.8	
EBIT margin (%)	29.8	-2.3	-5.8	-6.6	-6.7	-7.0	4.7	11.3	7.0	
Net profit margin (%)	30.0	-2.1	-5.7	-6.7	-6.7	-7.1	4.7	11.2	6.9	
Return on Investment (%)	89.1	-6.6	-17.6	-20.4	-20.6	-19.4	16.3	46.2	30.5	
Financial position (%)	-7.5	-12.5	-26.2	-13.8	-9.6	4.8	8.4	32.7	40.2	

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The industry's income is 100% composed of the turnover generated throughout the financial year, though in 2021 and 2021 the industry recorded relatively insignificant values of other income. During the pandemic year turnover increased to EUR 39.9 million from EUR 28.5 million recorded in 2019. This was derived by an increase in number of enterprises within the ≤10 employees segment and improvements in performance by the 11-49 employees segment. In 2021, the increasing trend of turnover continued, as the industry recovered from COVID-19 turnover increased to EUR 47.3 million over 2020 (19%). Similar fluctuations occurred to the other end of the industry as production costs increased in both 2020 and 2021 by 30% and 25% respectively of the respective previous year. In both years the financial performance of the industry yielded increased profit levels that were higher than 2019. In 2020, the fish processing industry recorded net profits increases of 237% over 2019. In 2021, net profits decrease by 27% over the previous year, as production costs increased, though still the net profits recorded are still 146% higher than the profits recorded in 2019.

Given the recorded net profits in 2020 and 2021, other financial indicators such as OCF, EBIT, and profit margins show similar movements. The industry has also shown improvement in performance indicators such as labour and capital productivity.

As expected, investment in 2020, due to the pandemic, did not drastically change, and while it increased by 40% over 2019, this is mostly due to the increase in industry size recorded during the year. The trend continued in 2021 as investments decreased by 16%. Still, the increased profitability showed that the investments made and assets within the industry are yielding significant returns. This, together with the positive turnaround in EBIT, is reflected in the ROI indicator of the industry, which shows a very positive figure of 46.2% and 30.5% in 2020 and 2021, respectively.

Given that the level of debt has been decreasing since 2017, with debt estimated at EUR 6.5 million in 2021 and the value of assets increasing, the financial position of the industry has continued to improve. The financial position of 2021 was recorded at 40.2%. This, more than before, continues to show that assets are being financed through retained earnings or other potential sources outside of debt financing.

8.17.3 Breakdown by company size

The Maltese fish processing industry is constituted by two segments, with segment 1 being enterprises that employ less than or equal to 10 employees, which has 5 enterprises operating within it, and segment 2 being enterprises that employ between 11 and 49 people, which has 2 enterprises operating within it.

Segment 1 generated EUR 17.7 million and EUR 21.1 million in income in 2020 and 2021, respectively. While this continues the increasing trend started in 2016, the increases are predominantly driven by the increase in size of the segment, particularly for 2020. Nevertheless, the 20% increase in turnover in 2021 over 2020 shows positive signs of the increasing trend registered before the pandemic and before the size increase. For segment 2, income increased by 32% in 2020 (EUR 22.2 million) over 2019 (EUR 16.8 million) and by 17% in 2021 (EUR 26.1 million) over the previous year. Production costs followed a similar fluctuating trend both in segments 1 and 2, where segment 1 recorded 45% and 31% increases in 2020 and 2021 over the previous years, and segment 2 recorded 21% and 19% increases for the same year-on-year comparison carried out for segment 1.

For both segments, although costs increased, the increased income generated positively affected the segments since net profits were recorded for both 2020 and 2021. Both segments have shown continued development in profitability trends, respectively.

Due to the size increase of segment 1 in 2020, employment increased by 75% (49 employed individuals). Meanwhile, in 2021, the exiting phase of the pandemic induced enterprises to start recruiting more individuals, hence the 10% increase in employment for this segment to 54. The FTE of these figures corresponded to 48 and 53, respectively. In segment 2, in 2020, there was an 8% decrease in employment (48), but that number increased in 2021 as the total number of

employees in segment 2 increased to 58 (21%). The FTE for these two years was 46 and 57, respectively. It is clear that both segments 1 and 2 employ almost entirely full-time employees.

Labour productivity in 2020 and 2021 decreased for both years over the previous one, by 3% and 34%, respectively, for segment 1. Capital productivity increased in 2020 (20%) and then decreased the following year (-40%). These fluctuations derive from the fact that GVA has also followed a similar trend, that of increasing in 2020 and decreasing in 2021. The segment employing between 11 and 49 employees in 2020 recorded an increase of 118% and 79% in labour and capital productivity, respectively. In the subsequent year, these indicators recorded slight decreases of 16% and 3%, respectively.

Table 8.17.3 Economic performance by company size, Malta, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	11.6	10.1	8.8	9.2	9.7	10.5	11.7	17.7	21.2	20%
Total production costs	7.7	10.0	8.9	9.4	9.8	10.2	10.6	15.4	20.2	31%
Gross Value Added	4.5	0.8	0.4	0.4	0.4	0.9	1.7	2.9	2.1	-27%
Operating Cash Flow	3.9	0.2	-0.1	-0.2	-0.2	0.3	1.0	2.3	1.0	-56%
Earning before interest and tax	3.8	0.1	-0.2	-0.2	-0.3	0.1	0.9	2.1	0.7	-64%
Net Profit	3.8	0.1	-0.2	-0.2	-0.3	0.1	0.9	2.1	0.7	-65%
between 11 and 49 employees										
Total Income	34.6	25.5	13.9	14.3	14.4	13.4	16.8	22.2	26.1	17%
Total production costs	24.2	26.0	14.8	15.3	15.5	14.9	16.0	19.3	23.0	19%
Gross Value Added	12.3	1.7	0.8	0.7	0.7	-0.3	2.1	4.2	4.4	4%
Operating Cash Flow	10.3	-0.5	-0.9	-1.0	-1.1	-1.5	0.8	2.9	3.1	6%
Earning before interest and tax	10.0	-0.9	-1.1	-1.3	-1.3	-1.8	0.5	2.4	2.6	6%
Net Profit	10.1	-0.8	-1.1	-1.3	-1.4	-1.8	0.4	2.4	2.5	6%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG

Capital values went up by 42% (EUR 2.2 million) and 20% (EUR 2.6 million) in 2020 and 2021, respectively, in Segment 1. Investments went up by 110% (EUR 0.2 million) in 2020 because the segment went up, but they went down by 28% (EUR 0.1 million) in 2021. For segment two, both capital value and investments recorded small fluctuations in 2020 and 2021. Capital value increased by 12% and 8%, respectively, while investment decreased by 8% in 2020 and increased by 3% in 2021. The decline in investment within segment two derives mostly from the economic environment present during the pandemic. The fluctuating nature of ROI in both Segment 1 and Segment 2 underscores the complex interplay of various financial factors.

Nevertheless, due to improvements in income and net profits for both years being reviewed, the ROI for both of these years was positive for both segments. In 2020, segments 1 and 2 recorded ROIs of 94% and 32%, both significant increases over 2019. Nevertheless, due to improvements in income and net profits for both years being reviewed, the ROI for both of these years was positive for both segments. In 2020, Segment 1 and Segment 2 recorded ROIs of 94% and 32%, respectively, both marking significant increases over 2019. These remarkable gains were reflective of the substantial growth in capital values and investments in Segment 1 and the careful management of costs in Segment 2.

However, in 2021, the landscape shifted. Segment 1 saw its ROI decrease quite significantly, down to 28%, a notable drop from the previous year. The decline in investments, particularly due to the economic uncertainties of the pandemic, played a pivotal role here. In contrast, Segment 2 remained relatively stable at 31% in 2021. This stability could be attributed to the resilient balance between capital values, investments, income, and costs, which helped maintain a favourable ROI even in the face of economic challenges.

Although these indicators show positive signs, the FEI for both segments 1 and 2 remains negative, continuing the negative trend observed in previous years. This derives from increases in the consumption of fixed capital in both years and also from declines in net investment. In the case of

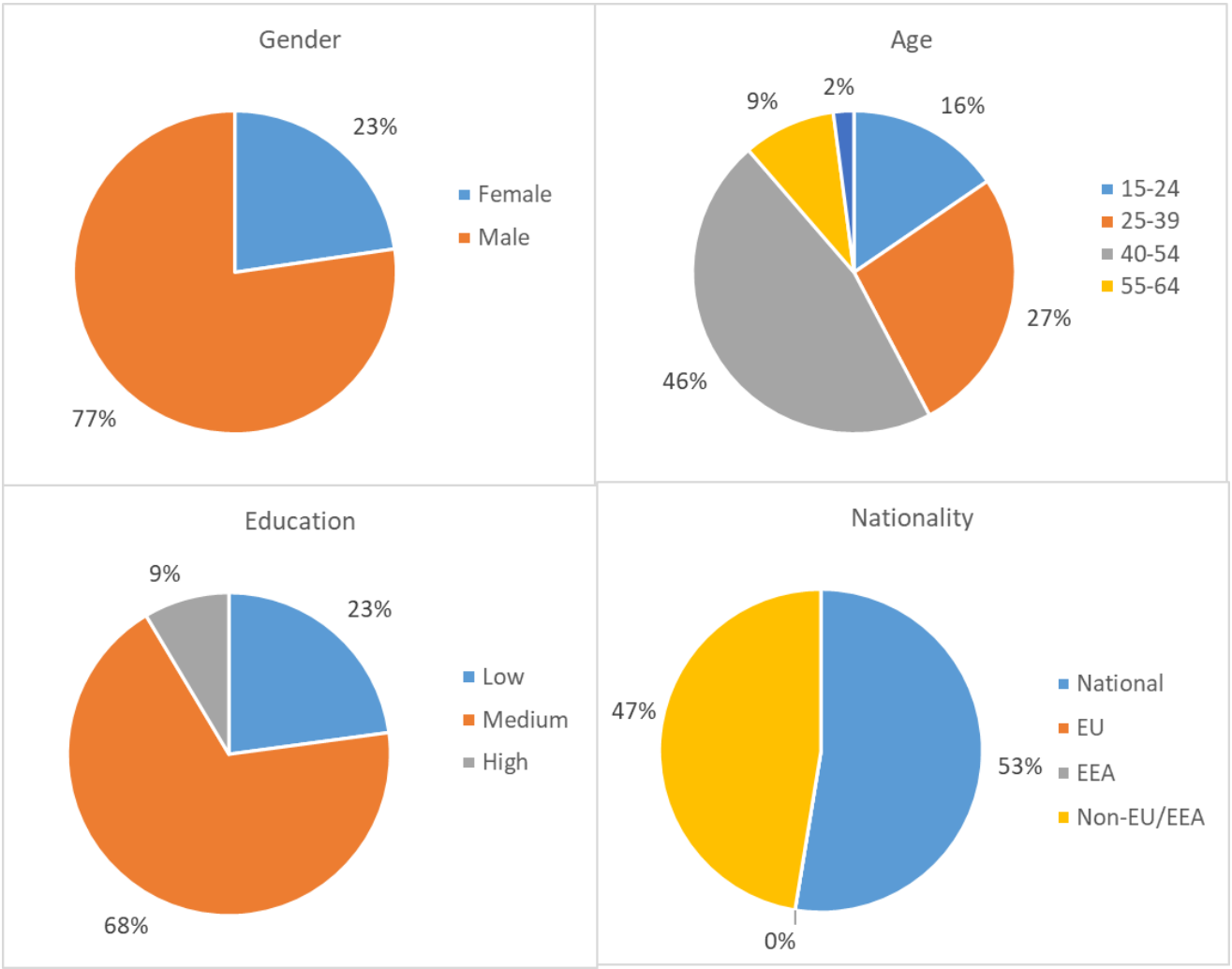
both segments, the most notable would be the increasing trend in consumption of fixed capital. A negative FEI gives a possible indication that enterprises within this segment have no willingness to expand their production capacity. This could signal that this segment requires further investment, with a particular focus on innovation in terms of capital. FEI for 2020 and 2021 was -1% and -5% for segment 1, respectively, and -5% for both years. However, indicators like ROI and the financial position paint a more positive picture of these segments. This is because FEI has continued to rise due to debt slowly decreasing since 2017, and ROI has significantly increased in both 2020 and 2021, especially when compared to 2019.

8.17.4 Socio-demographic structure

In 2020, the distribution of employment by gender was mostly male-dominated (77%). This trend is prevalent in both active-size segments of the industry. In terms of age distribution, the majority of the labour force in the fish processing industry is between 40 and 54 years of age (46%), followed by 25–39 (27%), 15–24 (16%), 55–64 (9%), and 65+ (2%). Education-wise, similar to other primary sectors in Malta, the number of employees categorised within the 'high' bracket of educational attainment is the lowest observed share (9%), with the majority being in the 'medium' education bracket (68%). The remaining share falls in the 'low' educational attainment bracket, this being educational attainment levels up to primary education.

2020 social data also shows that 53% of the labour force within the fish processing industry is Maltese, whereas the remaining share of the work force is from a non-EU/EEA country.

Figure 8.17.2 Socio-demographic characteristics, Malta, 2020



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.17.5 Trends, drivers and outlook (including Covid-19 impact)

Seafood Trade

Malta exports to both intra-EU and extra-EU countries, though in general, as it has been observed over the last ten years, Malta always tends to export more to extra-EU countries (80% in 2021) than intra-EU countries. In fact, the highest quantities of exports are made to Japan and the Republic of Korea. In 2021, Malta exported most of the processed seafood, in terms of quantities, to Japan (48%), Italy (14%), and the Republic of Korea (12%). In terms of value, the largest turnover is obtained through exports to Japan (62%), the Republic of Korea (21%), and Italy (5%). Malta mainly exports bluefin tuna and gilthead seabream to these countries, where such seafood is exported as frozen amongst them.

In terms of imports, Malta generally tends to import mostly from intra-EU countries, though interestingly, one can notice that the increase in imports, which has been on an increasing trend since 2015, has been mainly contributed by increases in extra-EU imports. Imports from extra-EU countries have increased by 140% since 2014, and in 2020 and 2021, imports from extra-EU countries will become more prevalent, as they will make up 58% and 56% of the total imported seafood, respectively. In 2021, Malta imported its largest quantities from Morocco (40%), the Netherlands (22%), Italy (8%), and Spain (6%). Malta imports mostly bluefin tuna, herring, and sardines.

It is expected that for 2022 and 2023, costs related to the purchase of raw materials, particularly via imports, will definitely increase in prices due to the increase in the costs of transportation of such raw materials and the increased inflation experienced across the EU due to market instability caused by geopolitical conflict and other economic conditions.

Energy Costs

It should be noted that over 2020 and 2021, energy costs have increased gradually, recording a 45% increase in 2021 over 2020. It should be remembered that the size of the industry increased over these periods. Also, Malta has been adopting hedging policies for gas prices for a number of years, thus ensuring certain price stability over the data framework's period.

The geopolitical conflict between Russia and Ukraine that escalated in February 2022 has significantly affected energy markets and prices across Europe. Russia has been a major supplier of natural gas to the EU, providing a substantial portion of its imports in recent years. However, flows of Russian gas to Europe have declined markedly since the start of the conflict due to sanctions, damaged infrastructure, and Russia restricting exports. This drop in supply has led to surging natural gas prices in Europe, with benchmark indexes like the Dutch TTF showing many-fold increases compared to prices in early 2021. High gas prices have also contributed to rising electricity costs, as gas is critical for power generation. The conflict has further impacted global oil markets and caused volatility in crude prices, feeding into higher energy bills. The EU has taken steps to increase gas storage and diversify supply. Though energy security worries and reliance on Russian fossil fuels have raised costs and inflationary pressures,

In response to this, the Maltese government has opted to implement a strategy of freezing electricity and fuel prices. In order to achieve this objective, the government has granted subsidies for energy costs being incurred. These subsidies are based on the disparity between retail energy prices and production costs, which in turn reflect the prices of liquefied natural gas (LNG) and electricity imports. This policy has had a positive impact on headline inflation, as evidenced by Malta's inflation rate of 7.2% in November 2022, which is below the average rate of 10% in the euro area. The policy has had several beneficial effects, including supporting consumer confidence, real wages, and overall economic activity. When compared to other European countries, Malta's retail prices for electricity and fuels are among the lowest.

Covid-19

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several beneficial effects, including supporting consumer confidence, real wages, and overall economic activity. When compared to other European countries, Malta's retail prices for electricity and fuels are among the lowest.

By 2022 and 2023, the Maltese economy was transitioning away from the economic impacts of the pandemic, though in 2022, geopolitical conflict posed a new challenge to the Maltese economy and subsequently the fish processing industry as well.

8.17.6 Data coverage and quality

Data for 2020 and 2021 was sampled, even though the population of the fish processing industry only involved 7 enterprises in those years, due to the fact that it was not possible to collect data from the population. Sampling small data sets may create problems with issues such as over-fitting and noise within data, which may cause outliers or unexpected change in trends and variables. Consequently, this may result in over or under estimation of these respective variables. Also, no social data was provided which couldn’t allow for the analysis of social factors of the industry.

8.18 Netherlands

The Netherlands is one of the major fish processing countries in the EU. The terminology of 'processing' is in this context broader than only the activity of processing. Included in this definition and scope is the trade (import and export) of processed seafood product. The Dutch fish processing industry is more and more transformed as essential importer beside processor of fisheries and aquaculture fish products (FAPs) for the EU consumer market. The Netherlands is renowned as one of the main ports and logistic linchpin for the other EU MS. By the smart geographically located harbor of Rotterdam and the airport Schiphol of Amsterdam, the Netherlands has an excellent infrastructure for trade in goods like frozen and fresh fish products. This ideal infrastructure has been established in the past by the Dutch flower and horticulture. Therefore, also the Dutch fish processing and wholesaling industry, as a whole, has an important function as trading hub for other EU countries as its hinterland. The Dutch seafood companies have a major role in the food security (SDG2) within the EU, as on average 80% of the Dutch export value of fish products is generated within the EU market[42].

The demand for processed FAPs is larger than the supply from domestic production of it in the Netherlands. The growing diversity of fish products on the EU market, have resulted in growing imports of fish products. In particular, in the last five years (2017-2021) there was a scarcity for raw materials to meet the demand from the market. The importance of sourcing to have sufficient raw materials for fish processing and circular re-use into high value-added products is increasing. Almost 2/3 of the total Dutch seafood production volume is imported however still 1/3 comes from landings from the North Sea fisheries fleet. Many Dutch fish processor are specialized from origin in North Sea flatfish species like Common sole (*Solea solea*), plaice (*Pleuronectes platessa*), turbot (*Psetta maxima*) and crustaceans mainly Brown shrimps (*Crangon crangon*) and *nephrops* also knows as Norwegian lobster (*Nephrops norvegicus*). However, due to decreasing landing volumes at Dutch fish and Brown shrimp auctions since 2017, more and more fish processors have implemented a diversified range of species. In particular, the introduction of farmed Atlantic salmon and cod were successful for many enterprises. The Netherlands has grown to one of the major processors of Norwegian salmon within Europe last five years.

The demand for seafood products is evidently larger than the supply by landings at Dutch harbors. The landings of fish (e.g. flatfish like plaice and sole), Brown shrimps and mussels next to pelagic species (e.g. herring and mackerel) from the North Sea are still crucial for the distinctiveness (unique selling point) of many fish processors reliant on these species. The fresh landed North Sea fish species such as flatfish could be substituted by imports like Pacific plaice. However, as these imports are frozen with another texture it does not have similar quality and freshness as local or regional fresh landed fish. Another hurdle regarding substitution, flatfish fileting machines could not (easily) be utilized to process species like salmon. With all the challenges for the fisheries at the North Sea (Brexit, pulse ban, closing fishing areas and landing obligation) there is a high need for more opportunities to import (autonomous tariff quotas = ATQs) and innovation for circular processing in aim to efficient (re)use the scarce raw materials.

According to Eurostat data, in 2021, there were 159 enterprises in the fish processing industry of the Netherlands (Table 8.18.1). From a national research study, it is known that there were 206 enterprises active in the fish processing and fish wholesale industry in the Netherlands in 2021[43]. This larger number of enterprises could be clarified by the inclusion of fish importers registered as fish processor and wholesaler. The size of the industry, in terms of number of the enterprises with

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[42] Hoekstra, G. (2019). Visverwerkende industrie en visgroothandel in Nederland. Wageningen Economic Research. Rapport 2019-079f.

Wageningen Economic Research, national social economic fish statistics of production and trade: https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&sectorID=2860&themaID=2276&indicatorID=2872

[43] Hoekstra, F.F., Valk, Y. de, Deetman, B., (2023). Visclusters in Nederland (nulmeting): omvang en afhankelijkheid voor de keten en toeleverende industrie van Noordzeevisserij; Impactanalyse beleidsbeslissingen op de keten van Nederlandse visserijregio's. Wageningen, Wageningen Economic Research, Rapport 2023-030. 98 pp.; 25 fig.; 12 tab.; 46 ref. ISBN 978-94-6447-654-5: https://edepot.wur.nl/590869.

fish processing as main activity, is dependent on the selection criteria. In the past (until 2014), the data collection on the Dutch seafood companies referred to around 80-90 fish processing enterprises. More and more seafood companies integrate fish processing and wholesale activities. Therefore, the distinction between either a fish processing, trader and fish wholesale company is not always that clear. Another reason that complicates the distinction between processing and wholesale or trading is the trend of consolidation, which means joint ventures as well as vertical integration upstream and downstream of the fish value chain.

With regards to the year of 2020-2021, it were exceptional years due to disruptions of the COVID-19 pandemic. HoReCa was closed for several periods to avoid further outbreaks of the virus. This resulted into fall in demand for in particular fresh FAPs and luxury fish products that are often consumed out-of-home such as dining in restaurants. The total income was estimated at EUR 1 047 million in 2021. This was an 8% increase compared to 2020. In general, there is a trend of upscaling in terms of production volumes last five years. Production volumes of many North Sea species locally landed decreased but production volumes and -value for imported species has increased. For instance, farmed salmon, tropical shrimps, farmed seabass and seabream are increasing in terms of produced value. The total production value increased with 10% from 2020 to a total of EUR 951 million (2021).

Table 8.18.1 Overview, Netherlands, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	147	141	144	150	153	151	154	158	159	1%
Total persons employed	3,262	3,197	3,162	3,210	3,276	3,067	3,068	3,086	2,965	-4%
Unpaid labour	90	88	90	87	94	91	83	88	86	-2%
FTE	2,126	2,114	2,181	2,186	2,227	2,083	2,119	2,189	2,092	-4%
Income, expenditure and investments (million €)										
Production value	758.7	840.1	813.1	869.9	896.7	947.9	1,002.6	863.7	950.6	10%
Turnover	707.8	797.5	764.3	823.8	864.9	920.1	974.5	873.2		
Total income	879.7	935.4	915.2	965.4	977.8	983.8	1,039.2	969.2	1,047.1	8%
Total purchases of goods and services	734.7	779.3	747.0	809.8	834.4	833.3	893.5	804.9	862.0	7%
Personnel costs	98.9	113.2	106.9	102.9	101.6	99.1	101.1	110.8	130.4	18%
Gross investment in tangible goods	16.7	16.5	17.0	22.8	22.5	21.0	33.9	11.5	25.4	121%
Economic performance (million €)										
Gross Value Added	151.2	174.2	170.1	167.1	155.4	153.1	148.7	164.9	187.3	14%
Gross profit	52.4	61.0	63.2	64.2	53.8	54.0	47.6	56.6	56.9	0%

Source: Eurostat, 2023.

Several fish processors had economically spoken challenging years by scarcity in resources (raw materials). Landings for important flatfish species (e.g. plaice) decreased in volume, which resulted in higher purchasing prices for processors since 2017. The total costs of purchasing fish and other raw material for production has increased by 7% to a total of EUR 862 million in 2021 compared with 2019. In line with a decreased production value has the costs for purchasing these raw materials resulted into less costs in absolute terms.

For unknown (likely ecological) reasons, there was a decrease of landing volumes for certain species (in particular flatfish) from the North Sea[44]. On the contrary, there are historical large stocks for many fish species in the North Sea like plaice and sole according to the scientific stock assessments

[44] Scientific, Technical and Economic Committee for Fisheries (STECF) - The 2021 Annual Economic Report on the EU Fishing Fleet (STECF 21-08), EUR 28359 EN, Publications Office of the European Union, Luxembourg, 2021. doi:10.2760/60996.

by ICES[45]. Since and after the COVID-19 pandemic there is more and more need for employees. Before 2020-2021, there was already an aging trend among many fish processing enterprises, however since COVID-19 it is more accepted to work remotely by online meetings. Many industries including the fish processing experiences difficulties to attract new employees as many other branches do promote remote working with less travel time and accepting more working from at home. Working from at home is often not possible for production employees in the fish processing industry as an extra reason for labor people to consider other industries.

Due to the scarcity of available labor, personnel costs increased by 18% in 2021 compared to 2019. As net investments in intangible goods increased strongly with 66% in 2017-2019, these costs were likely postponed as there was an increase of 33% from 2020. This could be explained by financial challenging years of 2020-2021 due to the COVID pandemic. Costs for purchasing the raw materials (e.g. landed or imported fish etc.) dominated with 85% of the total costs in 2021. Personnel costs counted for 13% with rounded EUR 130 million of the total expenditures and costs. The other 2% of total costs were made by net investments in tangible goods.

The number of employees slightly decreased to a total of 2 965 persons (2 092 FTE) in 2021. This was 3 086 (2 189 FTE) in 2020. According to Hoekstra et al (2023)[46] the number of employees was far more than these registered almost 3 000 persons by the Eurostat SBB data. Namely, according to this national scientific research there were 9 600 employees (5 200 FTE) working in the Dutch fish processing industry consisted of 206 enterprises.

Many processing enterprises did try to recruit new employees however similar to many other sectors it is difficult to hire sufficient personnel. Due to labor shortage, multiple fish processors are discovering ways to automate by investing into new techniques such as packaging robotics or fileting machines. Due to a trend of higher customization requested for the product by customers (often retailers or wholesales) this means more additional working tasks for the similar production volumes.

In particular, due to decreased costs for net investments in tangible goods and total purchases good and services (mainly raw materials) the economic performance the Gross Value Added (GVA) increased with 14% in 2020-2021 to a total of EUR 187 million. The gross profit remains on a similar level (+0%) to EUR 57 million in 2021. The stable economic performance in 2021 compared to the previous year could be mainly declared by higher income and turnover but also increased costs.

From Eurostat data the total value of imported seafood increased from EUR 2.5 billion (2013) to EUR 3.9 billion (2020) and EUR 4.3 billion (2021). In terms of volumes (weight) this was corresponding to 0.8 million tonnes (2013), 1.1 million tonnes (2020) and 1.1 million tonnes (2021). In terms of value (EUR) the top 5 importer countries for the Dutch fish processing industry were Iceland, Norway, Germany, Belgium and Denmark. Iceland and Norway are increasing important for the raw material availability of cod, flat fish species and farmed salmon. Expressed in volumes (weight), Russia is an important supplier for whitefish products to the EU fish processing market, it is as well to the Netherlands.

The exported value increased strongly: from EUR 2.9 billion (2013) to EUR 4.7 billion (2020) and EUR 5.3 million (2021). In terms of volumes (weight) exports increased from 0.8 million tonnes (2013) to 1.2 million tonnes (2020) and 1.3 million tonnes (2021). Major export markets in value (EUR) were Germany, France, Belgium, Spain and Italy in 2021. Expressed in volumes (weight), Nigeria has to be included in the top 5 export markets for frozen small pelagic products.

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[45] ICES. 2021. Plaice (Pleuronectes platessa) in Subarea 4 (North Sea) and Subdivision 20 (Skagerrak). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, ple.27.420. https://doi.org/10.17895/ices.advice.7819.

ICES. 2021. Sole (Solea solea) in Subarea 4 (North Sea). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, sol.27.4. https://doi.org/10.17895/ices.advice.7859.

[46] Hoekstra, F.F., Valk, Y. de, Deetman, B., (2023). Visclusters in Nederland (nulmeting): omvang en afhankelijkheid voor de keten en toeleverende industrie van Noordzeevisserij; Impactanalyse beleidsbeslissingen op de keten van Nederlandse visserijregio's. Wageningen, Wageningen Economic Research, Rapport 2023-030. 98 pp.; 25 fig.; 12 tab.; 46 ref. ISBN 978-94-6447-654-5: https://edepot.wur.nl/590869.

Outlook

For the nearby future labour shortages and availability of raw materials are the main challenge for the Dutch fish processing industry. In 2023 there is a decommissioning expected for a large share of the Dutch beam trawling fleet targeting especially flatfish. The trend of decreasing of landed volumes by the North Sea fisheries fleet is a concern for processors as production capacity is underutilized. Therefore, self-sufficiency will further decrease. Since the demand for seafood products is larger than the supply by landings, the industry becomes more dependent on imports. This is in line with the trend for the entire EU as net importer. The importance of increasing autonomous tariff quotas (ATQs) is crucial for the Dutch fish processing enterprises for sufficient raw materials and to optimize personnel and machinery capacity.

The COVID-19 pandemic emphasized the importance of logistics and transports within global supply chains. Shipping costs are expected to strongly increase by extreme competition of scarce available shipping containers. At the supply side by fisheries' landings, there are many challenges that could limit the availability of raw materials. The first main challenge is Brexit. From the landing value by Dutch demersal fisheries, 30% comes from British waters. For the Dutch pelagic fisheries, this is even 60%. There is a Brexit deal until 2026. However, from 2026 annually negotiations will be needed to maintain access by EU fisheries to British waters. Furthermore, there is the challenge for sufficient raw from less fishing area due to the expansion of offshore windfarms and marine protected areas. Other challenges are expected in nearby future like increasing energy (electricity and fossil fuel) costs, expected taxes on CO_2 emissions and increased transparency and reduction of the footprint required by retailers and non-governmental organisations (NGOs).

The Ukraine-Russia war since 2022 did not only result into higher energy costs. Another effect is more resistance from EU to import whitefish from Russia. This is another challenge for the fish processing industry after the COVID-19 pandemic, energy crises and shrinking landing volumes by national demersal fishery fleet.

Despite these multiple disruptions and challenges for the Dutch fish processing industry it is expected that enterprises will continue with modernizing their production capacity and supply channels. This could be realized by investments into robotics for processing (sorting, filleting) and packaging using artificial intelligence software. Another strategy to add maximum value to FAPs is by directly source raw materials from country of origin and to process it as one-stop-shop for the EU market in a high quality premium and food safe way.

Data coverage and quality

No Dutch data were submitted in the EU fish processing sector data call. The Netherlands decided not to collect data any longer on the fish processing industry under the DCF / EU-MAP from 2016-17. Thus, DCF data were only available until 2014, as they were submitted in previous data calls.

Hence, the EWG prepared this section based on Eurostat's Structural Business Statistics data, which are publicly available complemented with quantitative data from scientific reports and expert judgment of the national expert within the STECF meeting EWG 2023-14.

8.19 Poland

8.19.1 Overview

Poland is one of the most important fish processors in the European Union. According to EUROSTAT data, the production value of this sector in the EU-27 amounted to EUR 25.8 billion in 2020. In Poland, during this period, it increased 2.3 times, reaching the level of 3.2 EUR billion, and Poland's share increased from 7.6 to 12.4%. In nominal terms, only the fishing industry in Spain and France generates a higher production value, while taking into account purchasing power parity, Poland is second only to Spain.

Poland is the clear leader in the EU production of fresh fillets (32% of the total volume), smoked salmon (45%), as well as processed and canned herring (51%).

Restrictions in Baltic fishing and the low biological diversity of own resources allow only 25-30% of the processing demand for the raw material to be met, which makes it dependent on imports and the global supply and demand situation on the markets of individual fish species.

In 2021, there were 198 companies involved in fish processing in Poland; 159 of them defined the primary production under the NACE Code 10.20. In the period 2013-2021, a downward trend can be observed in the number of enterprises dealing with fish processing, which is mainly a consequence of mergers and acquisitions, but also liquidation and bankruptcy. The share of enterprises for which fish processing was not the main activity represented 14-20% of the total number of processing companies.

In terms of the number of processing plants, the Polish processing industry with fish production as the main activity is dominated by small and medium-sized companies. In 2021, the largest number of plants (39% of the total) employed between 11 and 49 persons, then 33% between 50 and 249, 21% less or equal to 10, and 8% employed greater or equal to 250 persons. However, the production in Polish fish processing industry was highly concentrated. In 2021, most of production value (69% of value) was concentrated in large fish processing companies with more than 250 employees.

Table 8.19.1 Overview, Poland, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	183	180	185	181	170	164	163	156	159	2%
≤ 10 employees	49	51	52	35	31	35	35	31	33	6%
11-49 employees	78	65	68	77	72	63	63	61	62	2%
50-249 employees	43	50	53	57	53	51	51	50	52	4%
≥ 250 employees	13	14	12	12	14	15	14	14	12	-14%
Employment (number)										
Total employees	14,783	16,775	17,743	18,947	18,633	19,503	19,850	19,030	19,561	3%
FTE	13,974	16,042	16,937	17,873	17,578	18,845	19,180	18,678	19,198	3%
Indicators										
Turnover (million €)	2,128	2,252	2,503	2,514	2,760	3,346	3,326	3,312	3,423	3%
FTE per enterprise	76.4	89.1	91.6	98.7	103.4	114.9	117.7	119.7	120.7	1%
Average wage (thousand €)	12.2	12.0	12.7	13.1	14.2	14.7	15.1	17.0	17.2	1%
Unpaid work (%)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	-16%
Enterprises doing fish processing not as main activity										
Number of entreprises	38	45	42	41	42	40	38	32	39	22%
Turnover attributed to fish processing (million €)	100.5	93.4	70.3	66.3	80.8	60.5	142.8	262.5	280.8	7%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The distribution of processing activity across Poland remained consistent with previous years. There is a continued dominance of processing activity in the coastal region in the Pomorskie and Zachodniopomorskie region where about almost 48% of the Polish fish processing industry was located in 2021.

The turnover that remains at the same level proves the stable position of the Polish fish processing industry. In the years 2008-2021, the value of turnover in Polish enterprises dealing mainly with fish processing increased by over 134%, which proves the continuous development of Polish processing. The share of a company with foreign capital in revenues is currently estimated at approximately 60%.

In 2021, the average number of employees increased to 19 561 by an increase of 3% compared with the previous year and an increase of 32% compared to 2013. Most employees worked full-time and FTE amounted to 19 198 FTE demonstrated an increasing tendency from 2013. The average size of the enterprises measured by FTE was 121 employees and increased by 58% FTE from 2013. The average salary per employee (in FTE) per year reached EUR 17.2 thousand and increased 1% year on year and almost 41% compared to 2013.

8.19.2 Economic performance

In Table 8.19.2, the economic performance for the Polish processing industry for the period 2008 to 2021 is presented. In 2020, the economic activity of the fishing industry in Poland was very satisfactory, taking into account economic indicators. All productivity and efficiency indicators showed a positive trend at the turn of 2019 and 2020.

In 2021, the economic performance of the fish processing industry in Poland was not so successful like in 2020, but taking into account the sharp increases in raw material prices and disruptions in supply flow caused by Covid-19, the Polish fish processing industry still maintains a stable financial position looking at the fish processing industry in general.

The total income decreased to EUR 3.42 billion in 2021, which means a decrease of 3%, compared to the previous year. Taking 2013 as the basis of comparisons, an increase of 61% can be noted. Turnover from the main activity created a significant part of the total income (99%).

Unfortunately, growing revenues were also accompanied by an increase in operating costs by as much as 19%. Total production costs increased to EUR 3.1 billion in 2021. The highest increase in costs was recorded in the case of purchase of fish and other raw materials for production (24%) and other operating costs (15%). The third cost item was represented by labour costs (4%). Production costs currently account for 89% of total income.

The most important cost component is the purchase of fish and other raw materials, which make up for 72% of the total production cost. Other operational cost covers 16.2%, whereas wages and salaries amount to 10.6%. Energy cost accounts for 1% of the total production cost.

The fastest rate of growth of production costs were costs of fish and other raw material, an increase of 138% compared to 2013. The rising cost of raw materials for processing fish in 2021 was determined mainly by increases in the prices of raw materials on world markets, the main cause of which was the Covid-19 pandemic. In Poland, the supply of raw fish and complementary materials is mainly based on imports.

The rate of growth of labour costs increased by 94% and 4%, respectively to 2013 and 2020. The share of labour costs seems still lower in comparison to the other EU countries like for example Sweden, Germany and Spain.

Costs growing faster than revenues translated into the deterioration of economic indicators. It can be observed that Gross Value Added (calculated as the total income deducted by energy cost, fish and other raw material cost and other operational cost) decreased by 35% from 2020 to 2021, and Operating Cash Flow has decreased by 52% during the same period.

Also, EBIT and Net Profit decreased a lot. This translated into the value of the indicator like EBIT margin and Net profit margin to reach levels accordingly 8.6% and 9%.

The values of these indicators have decreased, but their level can still be considered satisfactory. The EBIT margin for the food industry in Poland in 2021 was 7.9%, which means that fish processing

companies generate better profitability compared to the Polish food industry. In addition, comparing the indicators to 2019, it can be seen that they are much better, i.e., GVA Margin increased from 6.2 to 8.6%, and Net profit margin from 5.7 to 9%.

The labour productivity decreased compared to 2020 to 36%, as a result of rising FTE with low GVA but increased 100% compared to 2008. Still, the average salary seemed lower in comparison to the old EU countries.

Table 8.19.2 Economic performance indicators, Poland, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	2,127.7	2,251.8	2,503.3	2,514.1	2,760.2	3,346.4	3,326.3	3,312.1	3,423.0	3%
Other income	15.7	20.8	19.5	383.7	289.3	19.1	24.2	22.4	35.3	57%
Operating subsidies	8.8	9.4	10.5	11.1	9.4	15.9	15.6	18.1	3.7	-79%
Total Income	2,152.1	2,282.0	2,533.4	2,908.9	3,058.8	3,381.4	3,366.0	3,352.6	3,462.0	3%
Expenditure (million €)										
Purchase of fish and other raw material for production	1,567.1	1,602.5	1,768.5	2,166.3	1,964.6	2,216.5	2,302.1	1,803.2	2,232.0	24%
Wages and salaries of staff	169.8	192.8	214.3	234.1	249.2	275.8	289.3	317.4	329.8	4%
Imputed value of unpaid labour	0.1	0.1	0.0	0.1	0.3	0.3	0.3	0.2	0.1	-13%
Energy costs	26.2	26.4	27.7	28.2	29.4	37.8	39.7	38.0	34.4	-10%
Other operational costs	298.1	309.7	361.6	382.3	361.8	450.3	465.7	434.2	500.4	15%
Total production costs	2,061.2	2,131.4	2,372.2	2,811.0	2,605.3	2,980.8	3,097.1	2,593.0	3,096.7	19%
Capital Costs (million €)										
Depreciation of capital	46.0	51.1	54.6	55.2	64.5	68.1	61.9	64.2	67.6	5%
Financial costs, net	9.1	18.2	-17.2	-68.4	48.3	10.5	16.8	31.0	-13.1	-142%
Capital Value (million €)										
Total value of assets	1,307.3	1,321.8	1,420.7	1,669.4	1,896.9	1,750.1	1,746.3	1,690.3	1,827.9	8%
Net Investments	82.6	90.4	73.1	79.3	87.7	10.0	6.5	111.5	74.9	-33%
Subsidies on investments				0.0	0.0	5.5	9.9	2.1	2.0	-6%
Debt	819.1	817.4	872.9	1,074.4	1,023.8	1,050.7	1,113.6	1,087.8	1,296.2	19%
Economic performance (million €)										
Gross Value Added	252.0	334.0	365.1	321.0	693.7	660.9	542.9	1,059.1	691.5	-35%
Operating Cash Flow	90.9	150.6	161.2	98.0	453.6	400.6	268.9	759.6	365.4	-52%
Earning before interest and tax	45.0	99.5	106.6	42.8	389.0	332.5	207.0	695.4	297.7	-57%
Net Profit	35.9	81.3	123.8	111.2	340.7	322.0	190.2	664.4	310.8	-53%
Productivity and performance Indicators										
Labour productivity (thousand €)	18.0	20.8	21.6	18.0	39.5	35.1	28.3	56.7	36.0	-36%
Capital productivity (%)	19.3	25.3	25.7	19.2	36.6	37.8	31.1	62.7	37.8	
GVA margin (%)	11.8	14.7	14.5	11.1	22.7	19.6	16.2	31.8	20.0	
EBIT margin (%)	2.1	4.4	4.2	1.5	12.7	9.8	6.2	20.7	8.6	
Net profit margin (%)	1.7	3.6	4.9	3.8	11.1	9.5	5.7	19.8	9.0	
Return on Investment (%)	3.4	7.5	7.5	2.6	20.5	19.0	11.9	41.1	16.3	
Financial position (%)	37.3	38.2	38.6	35.6	46.0	40.0	36.2	35.6	29.1	

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

From 2020 to 2021, the depreciation of capital was increased by 5%, whereas the net financial cost decreased to EUR – 13.1 thousand, corresponding to a positive income. Total value of assets increased by 8%, whereas the net investment decreased by 33%.

The other economic productivity indicators such as return on investment, indicating the sector's ability to innovate, reached 16.3%, one year earlier this indicator was at a level of 41.1%. This means a decrease, but investment in the Polish fish processing industry is still profitable, comparing it, for example, to the rates of inflation and interest rates on Polish treasury bonds.

The Financial position has decreased to the level of 29.1% in 2021, compared to 35.6% in 2020, but the Polish fish processing enterprises still have a stable financial situation.

In 2020, fish processing enterprises in Poland received operating subsidies of EUR 18.1 thousand and in 2021 in the amount of EUR 3.7 thousand. Investment subsidies amounted to EUR 2.1 thousand in 2020 and 2.0 thousand in 2021.

Preliminary results for 2022 indicate an increase in revenues and a further significant increase in the costs of raw materials and materials, external services and employee costs. Unfortunately, this translates into worsening financial results.

8.19.3 Breakdown by company size

The economic performance of the Polish fish processing sector is mostly represented by large scale enterprises. In 2021, the largest enterprises generated 69% of the total income (EUR 2.38 billion). Fish processing enterprises with between 50 and 249 employees achieved 24.0% (EUR 841.2 million) of the national total income, and small-scale enterprises 6% of the total turnover.

Table 8.19.3 Economic performance by company size, Poland, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	23.2	25.0	26.8	17.6	22.3	12.3	20.3	19.7	19.3	-2%
Total production costs	21.4	22.1	23.6	14.1	13.4	16.7	21.8	23.4	30.1	28%
Gross Value Added	4.2	4.6	5.0	4.3	10.6	-3.0	-1.6	-1.9	-9.1	377%
Operating Cash Flow	1.8	3.0	3.2	3.5	8.9	-4.4	-1.5	-3.8	-10.8	187%
Earning before interest and tax	1.2	2.5	2.6	3.2	8.5	-8.8	-2.3	-4.3	-11.2	158%
Net Profit	1.1	2.4	2.8	3.2	8.4	-8.8	-2.5	-4.3	-11.3	165%
between 11 and 49 employees										
Total Income	229.0	177.5	199.7	210.2	242.2	239.9	199.0	114.7	217.7	90%
Total production costs	211.8	165.3	181.8	195.6	208.3	216.6	171.1	139.8	228.8	64%
Gross Value Added	31.9	24.7	30.3	26.7	48.3	34.4	42.8	-11.8	11.3	-196%
Operating Cash Flow	17.2	12.1	17.9	14.6	34.0	23.3	27.9	-25.1	-11.1	-56%
Earning before interest and tax	11.5	6.9	12.0	8.1	26.5	14.6	21.6	-28.8	-16.1	-44%
Net Profit	9.6	5.7	10.9	8.3	28.6	15.7	20.4	-29.5	-19.0	-36%
between 50 and 249 employees										
Total Income	487.4	578.8	728.9	797.7	823.5	726.8	742.5	543.1	841.2	55%
Total production costs	448.8	528.5	677.1	771.1	676.9	617.8	623.1	614.7	843.9	37%
Gross Value Added	81.4	100.0	114.5	89.7	211.6	172.8	179.5	-24.7	72.2	-392%
Operating Cash Flow	38.6	50.4	51.8	26.5	146.6	109.0	119.4	-71.6	-2.7	-96%
Earning before interest and tax	23.5	32.9	34.4	9.0	124.4	90.4	99.0	-87.2	-23.7	-73%
Net Profit	19.4	27.1	28.6	1.0	122.8	84.4	94.6	-89.0	-26.0	-71%
greater than or equal to 250 employees										
Total Income	1,412.5	1,500.7	1,578.0	1,883.5	1,970.8	2,402.4	2,404.3	2,675.1	2,383.8	-11%
Total production costs	1,379.2	1,415.6	1,489.6	1,830.1	1,706.8	2,129.6	2,281.2	1,815.1	1,993.9	10%
Gross Value Added	134.5	204.7	215.3	200.3	423.2	456.7	322.2	1,097.6	617.1	-44%
Operating Cash Flow	33.3	85.1	88.4	53.4	264.1	272.8	123.1	860.0	389.9	-55%
Earning before interest and tax	8.7	57.3	57.6	22.5	229.6	236.3	88.7	815.7	348.8	-57%
Net Profit	5.8	46.0	81.6	98.7	180.8	230.7	77.7	787.1	367.2	-53%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Micro-enterprises employing less than or equal to 10 employees had financial problems in both the 2020 and 2021 years. Micro-enterprises struggle with high operating costs (increased 28% compared to the previous year), caused by, among others, an increase in the costs of purchase of fish raw materials by 39%, which significantly exceed revenues (decreased 2%), which makes them loss-making enterprises.

Bigger size fish processing enterprises between 11 and 49 employees generated the greatest increase of turnover (96% compared to 2020). However, this did not allow the negative financial result to be negated, but the fact that the financial loss decreased in 2021 deserves a positive assessment.

Fish processing enterprises with between 50 and 249 employees achieved also a negative net profit value despite growing revenues. Compared to 2020, total income and total production costs increased respectively by 55% and 37%. Companies in this size category generated EUR 72.2 million GVA. These are also deficit enterprises, with net losses of EUR 26 million.

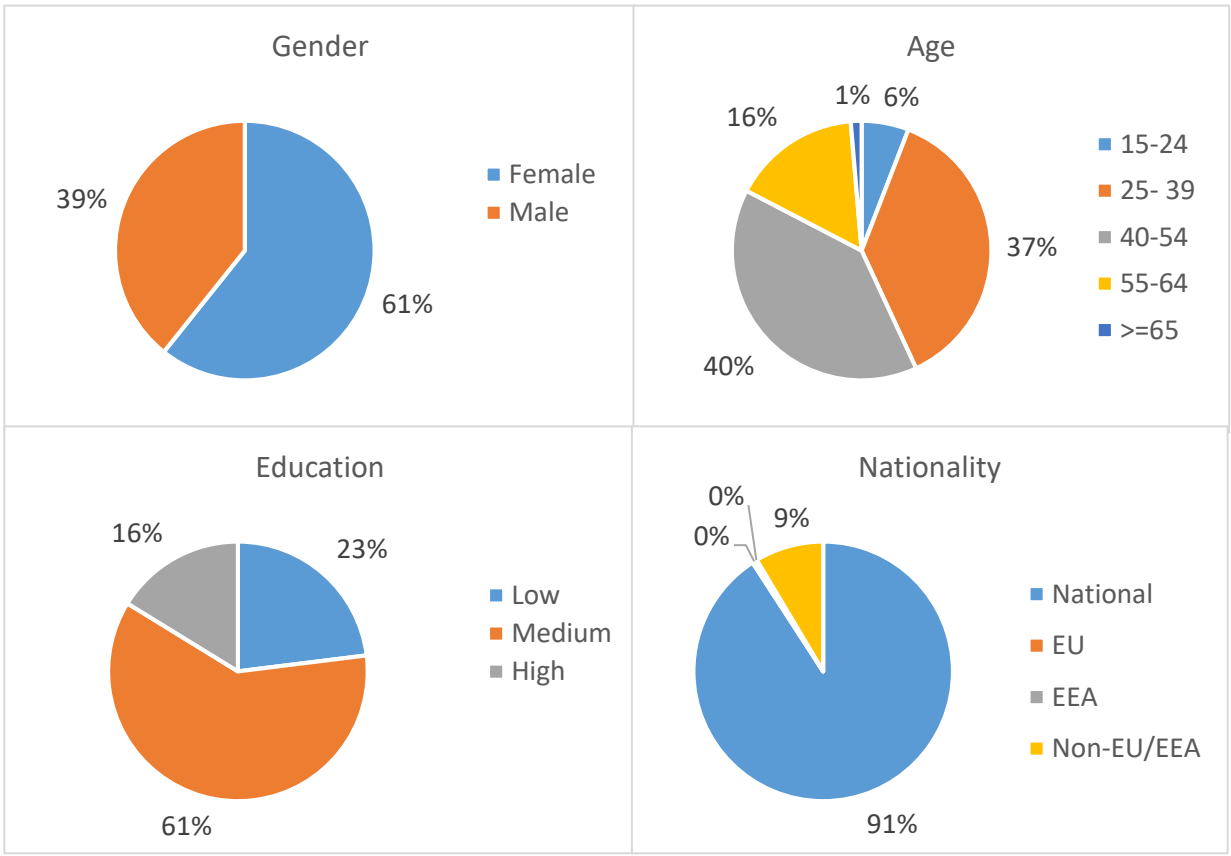
Group of large enterprises coped very well in the conditions of the Covid-19 pandemic. In 2020, net profit reached EUR 781.1 million (compared to EUR 77.7 million in 2019), and in 2021 EUR 367.2 million. GVA has dropped to EUR 617.1 million (44%), EBIT decreased to EUR 348.8 million (57%) in 2021. Productivity and efficiency indicators have decreased, but are still at a satisfactory level.

8.19.4 Socio-demographic structure

In 2021, the total employment increased by 3% to the level 19 561 in Polish fish processing plants. The employment structure by gender practically did not change during the analyzed period.The majority of employees involved in the processing sector in 2021 were female 61% followed by 39% male.

In 2021, 40% of the total employed were in the age group 40-54, followed by 37% representing people between 25-39 years, 6% for the age group 15-24 and only 1% of employees were over 65.

Figure 8.19.1 Socio-demographic characteristics, Poland, 2021

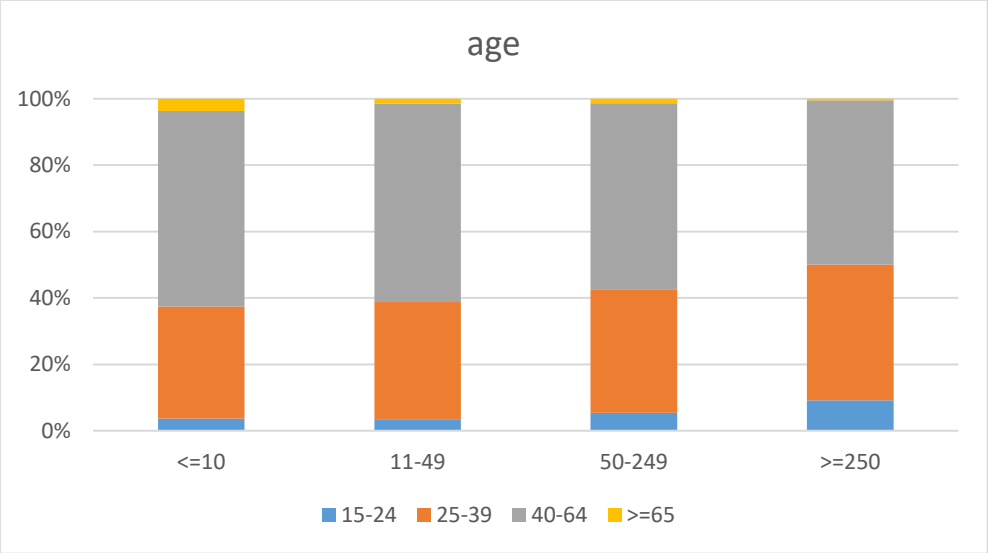


Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

In terms of education the most common answer was a medium education level (61% - 11 881 persons), the basic level of education was indicated by 23%, while higher education in Polish enterprises dealing mainly with fish processing has 16% of employees.

The results showed that 91% employees were Polish citizens. The fastest growth in nationality category is Non-EU/EEA. In 2021, it increased by 19% to 1 673 people. Employees from EU and EEA are less than 1%.

Figure 8.19.2 Socio-demographic characteristics: age by company size, Poland, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.19.5 Raw materials

In 2021, the reported volume of fish raw material supply to all fish processing plants for production was 786 thousand tonnes, i.e., 86 thousand tonnes more than in 2020 (up by 12%). The majority of fish raw materials (75%) were imported directly by processing plants, which was higher than in 2020 by 12%. Due to the ban on directed fishing for cod, introduced by EU regulations in mid-2019, has been extended for the following years and continued in 2021 and 2022, domestic supplies were lower than in the previous years. Domestically, processing plants sourced both raw materials from Polish Baltic fisheries, direct imports, domestic aquaculture and raw materials imported through commercial intermediaries. The structure of domestic supplies of raw material is dominated by sprat (38%), herring (17%), and trout (11%).

In 2021, the main fish species used in processing was Atlantic salmon (39% share), which was purchased over 305 thousand tonnes, an increase of 17%. The second species in terms of weight of supply was herring, which accounted for 14% of the total supply of plants with fish raw material (of which 70% was imported). The third most frequently purchased raw material was sprat - 77 thousand tonnes, i.e., 8 thousand tonnes less than in 2020 (down by 10%). The share of sprat in the total supply in 2021 was 10%. Alaska pollock came fourth (7% szare), with almost 53 thousand tonnes purchased (up by 17%).

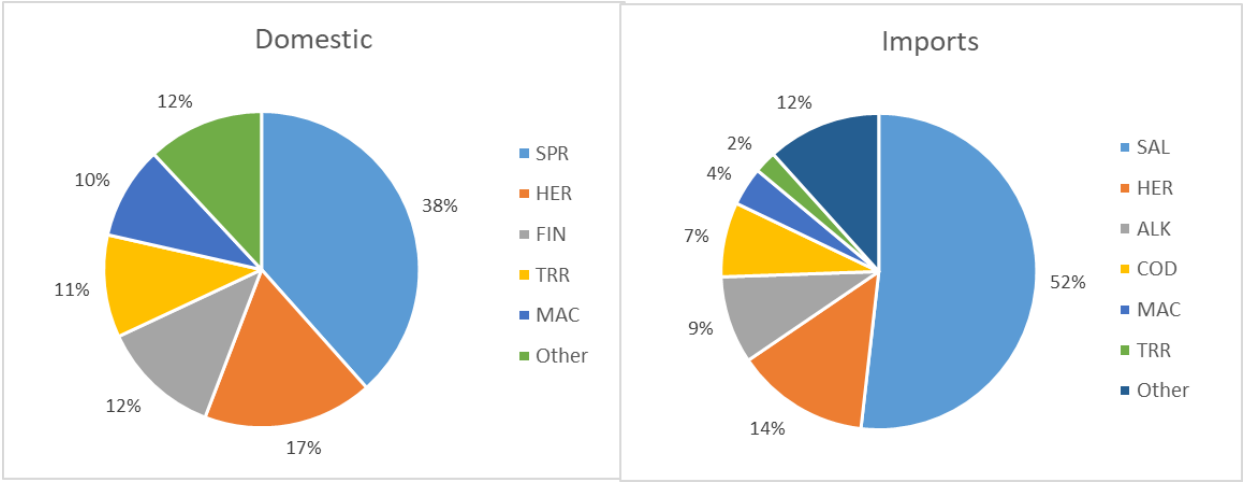
In the species structure of imports in 2021, salmon had the largest share (52% of the volume), followed by herring (14%), Alaska pollock (9%), cod (7%) and mackerel (4%). In 2021, as in previous years, salmon was imported mainly in the form of fresh fish (86% of the volume), but this share is decreasing. Most of them come from Norway (74%), but indirectly these fish are also sent from Sweden (the real share of Norwegian fish may therefore be approximately 85%)[47].The commodity structure of herring imports consisted mainly of frozen fillets (42%) and frozen meat (22%), as well as preserves and preserves (24%, most of which are pre-prepared for further processing). The main countries supplying herring to the Polish market in 2021 were: Norway,

[47] Hryszko, K. (red.). 2022. Rynek ryb. Stan i perspektywy. Nr 33. Analizy tynkowe. IERiGŻ PIB.

Iceland, Denmark and Sweden. Poland imports cod and mackerel mostly as frozen fish (66 and 80%, respectively), and Alaska pollock, saithe, hake, silverfish and pangasius almost exclusively in the form of frozen fillets. Mackerel available on the Polish market comes from the Netherlands and Iceland, Alaska pollock from China, Russia and the USA, cod from Russia and Norway, saithe from Norway and Iceland, trout from Norway, Italy and Denmark.

The quantitative structure of imports is dominated by products with a small degree of processing, the vast majority of which are sent to domestic processing plants (fresh, chilled, frozen fish, fillets and fish meat).

Figure 8.19.3 Main raw material used by species and origin, Poland, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.19.6 Trends, drivers and outlook

The fish processing market in Poland is still one of the most developed and growing sectors of the food industry. In recent years, fish processing has been characterized by the highest revenue dynamics in the food industry. The development of this sector took place mainly through sales on foreign markets.

This also translates into favorable financial results, and the ROE (Return On Equity) ensures that the industry is competitive against alternative low-risk capital investments. Such results were achieved despite low domestic consumption. The average consumption of fish and seafood in Poland in 2021 amounted to 14.18 kg of fish and fish products (in live weight of fish), which was an increase of 6.4% compared to 2020 but was definitely below the EU average. Higher dynamics of direct exports can be observed than total sales.

Imports played a dominant role in the supply of raw materials because of the limited ability to harvest fish domestically from the Baltic Sea, and the limited production of Polish aquaculture. The large role of foreign trade in the fish processing industry means that its economic and financial results are largely dependent on the exchange rate of the Polish zloty against other currencies, and trends in prices on international markets.

The sudden increase in prices of materials, raw materials and energy carriers in 2022 increased the costs of operations in this industry, which were not transferred to subsequent links in the food chain, reducing the processing margins of companies. This translated into a decline in profits in fish processing, despite dynamically developing sales.

The upward trend in foreign trade observed since the beginning of Poland's accession to the European Union was stopped in the first half of 2022. Russia's aggression against Ukraine has accelerated the high rate of increase in prices of fish raw materials and other production factors, high inflation, economic uncertainty and depreciation observed since the third quarter of 2021 zloty against other currencies.

8.19.7 Data coverage and quality

Economic and social variables of the processing industry are based on the information provided with questionnaires. The study was a census and questionnaire with economic variables, it was sent to all fish processing companies approved by the General Veterinary Inspectorate to intra-community trade according to Council Regulation (EC) no. 853/2004 of April 29, 2004, which sets forth detailed requirements regarding hygiene in foodstuffs of animal origin, Appendix IIII Section VIII Fishery Products.

Answering the questionnaire is mandatory but the response rate was 79% in 2021 for companies that defined the primary production under the NACE Code 10.20.

Data on the nationality and educational level of employees should be treated as approximations, due to the very low response rate.

There is also a problem in the data on the origin of the raw material. Due to the highly developed internal trade, the respondents mistakenly enter country of origin as Poland when buying raw material from a Polish intermediary i.e., for halibut or salmon.

8.20 Portugal

Portuguese domestic market is a large final consumer of fish and fish products, the biggest within UE in *per capita* consumption, with around 59.4 Kg per person in 2020 (FAO - Food Balance Sheets, 2023). This configures a unique UE profile, combining tradition and experience, innovation and know-how, and a major opportunity for the fish processing companies, but also implies a negative balance in international trade, where the imports of a large amount of fishing and aquaculture products comes to be the essential supply for the industry (about 500 million tonnes of imports, valued over EUR 2.1 billion in 2021).

After three years of growth, considering the COVID19 impact equal way for all inputs, consumption in Portugal declined in 2021, registering a 4% decrease from 2020 and reaching 75.8 thousand tonnes.

Household consumption of fresh fishery and aquaculture products has been growing since 2018, and in 2021 it reached EUR 535.6 million.

In 2021, of all the Member States, the ratio between meet and fish consumption (money spent) is most balanced in Portugal: of the total amount Portuguese households spent for fish and meat, fish accounted for 45%, while meat accounted for 55%[48].

According to Eurostat data, in 2018 there were 166 fish processing enterprises in Portugal and only 157 enterprises in 2021, with a total income of EUR 1.32 billion and EUR 1.36 billion, respectively.

Table 8.20.1 Overview, Portugal, 2008-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	154	153	157	160	168	166	161	150	157	5%
Total persons employed	6,726	7,068	7,148	7,452	7,668	8,101	8,508	8,433	8,433	0%
Unpaid labour	312	278	212	208	229	354	352	362	387	7%
FTE	6,380	6,774	6,913	7,221	7,415	7,725	8,110	8,036	8,022	0%
Income, expenditure and investments (million €)										
Production value	920.7	915.1	940.2	968.8	996.1	1,026.4	1,070.9	1,024.3	1,107.9	8%
Turnover										
Total income	1,129.3	1,130.5	1,167.6	1,230.1	1,285.8	1,316.6	1,353.5	1,257.6	1,364.6	9%
Total purchases of goods and services	999.1	918.4	1,032.2	1,058.5	1,133.6	1,141.0	1,164.0	1,061.4	1,148.8	8%
Personnel costs	95.2	98.6	103.3	109.8	116.0	126.3	135.4	140.3	144.1	3%
Gross investment in tangible goods	40.1	50.5	82.5	28.0	47.0	65.2	77.4	41.6	44.3	7%
Economic performance (million €)										
Gross Value Added	168.2	172.3	174.3	182.4	195.3	208.0	222.1	216.2	241.9	12%
Gross profit	73.0	73.7	71.0	72.5	79.3	81.7	86.8	75.8	97.7	29%

Source: Eurostat, 2023.

After some years of a decreasing number of enterprises (203 in 2008, 153 in 2014) there was a small increase during the years 2015-2017 but then the decreasing trend continued, resulting in a clear reduction of fish processors (some of them already within the COVID19 impact: 2019 to 2020 had 11 units reduction in total). In 2021, however, there is already a recovery to a total of 157 enterprises. Most enterprises are located in the north and in the centre of the country and around 15 in the outermost regions of Azores and Madeira.

[48] EUMOFA, November 2022. The EU Fish market 2022.

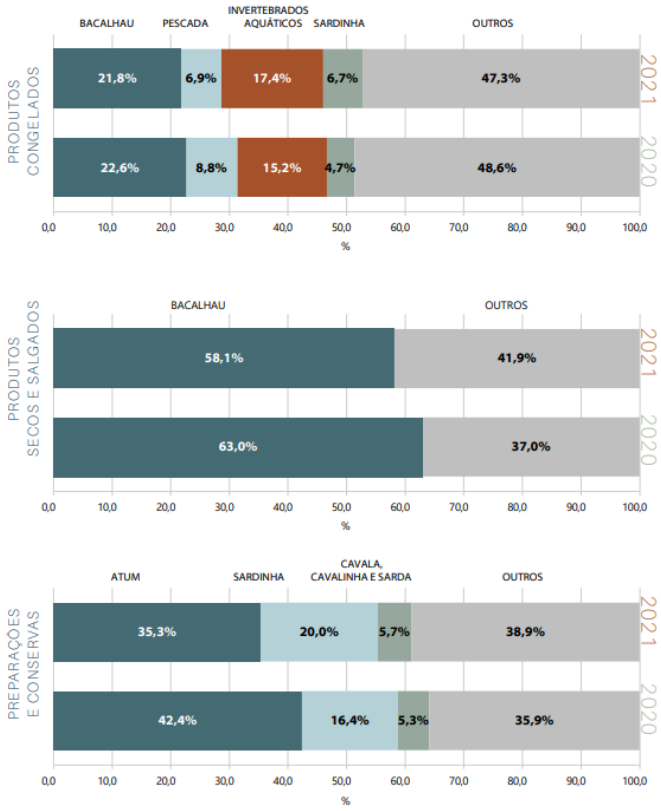
Traditionally, there are three main segments in fish processing in Portugal, each one with their own national and international market and specificity:

- frozen and fresh industry
- cannery and preparation
- salting and drying

All together Portuguese enterprises employed 8 433 people, with an average personnel cost (personnel costs per employee) up to EUR 17.9 thousand in 2020 (+3.1% from the previous year). With a total wages and salaries increasing significantly from 2018 to 2021 (+10%), again from the COVID19 impact, in average the number of persons employed per enterprise increased and was almost 54 persons per company. The total personal costs in 2021 went up to EUR 144.1 million, with wages and salaries up to EUR 111.4 million.

Despite the decrease in the number of fish processing firms in the last years, both the value of production and total income followed the increasing trend, even considering the 2020 decreasing. In total, in 2021, Portuguese fish industry produced 244 thousand tonnes (129.4 in the frozen and fresh sector, 60.2 in the salting sector and 54.4 in cannery and preparation).

Production by Portuguese fish industry



Source: INE, Annual industry production inquiry

The Portuguese processing industry embraces a large variety of products based on large amount of different species. The raw materials for the industry are acquired on the global market for fish and fish products, including aquaculture sources, and the dependency on domestic landings is somehow limited.

From national data, the main species are cod (frozen and salted), hake and redfish (frozen), sardine and mackerel (frozen and cannery), Alaska pollack (salted) and tuna (cannery). Also fresh and frozen molluscs, as clams, octopus, cuttlefish or squid, are a considerable part of the menu.

Some important economic indicators, as GVA and Gross Profit show a general increasing trend for the decade. The Value Added at factor cost in production value, with a constant growing since 2012, represented 21.1% in 2020.

Specifically, GVA increased by 7% in 2019 compared to 2018, reaching EUR 222.1 million and Gross Profit has gone up by 6% in comparison to 2018 reaching EUR 86.8 million. But, the 2020 was an atypical year, with a decreased GVA of -15%, reaching only EUR 75.8 million.

If in 2020 Portugal GVA was EUR 216.2 million by 2021 already recovered to EUR 241.9 million (+10.3% from 2020), the highest ever.

Table 8.20.2 Production distributed on species segments in tonnes

	2019	2020	2021
Frozen total	**119,317**	**117,458**	**131,933**
Invertebrate (squid, cuttlefish, octopus, clams and others)	21,733	17,892	22,917
Hake	9,907	10,300	9,055
Fish fillets	6,745	5,576	5,587
Sardine	5,004	5,574	8,858
Cod	29,777	26,568	28,720
Redfish	5,518	6,251	6,306
Salted total	**64,588**	**61,244**	**70,352**
Dry salted cod	39,090	38,595	40,899
Cannery	**49,451**	**60,565**	**56,189**
Sardine	8,645	9,934	11,265
Tuna	17,311	25,666	19,832
Mackerel	2,609	3,222	3,219

Source: INE, Fishery Statistics 2022

In general, the investments, in those years, were considerably lower than before. The gross investment in tangible goods, reached only EUR 41.6 million in 2020 (-46% to 2019); in construction and alteration of buildings, merely EUR 13.3 million (-63% to 2019); in machinery and equipment, simply EUR 23.7 million (-38.0% to 2019). This reflects the very low values ratio on investment/person employed and investment/value added at factors cost: respectively EUR 4.9 and 19.2 thousand (-46% and -45% from 2019 to 2020).

Overall, the industry relies on a balanced inflow of raw materials from third countries and EU suppliers, which seems to be relatively stable, considering the uncertainty of world geopolitical. The international trade, import and export, gain considerable dimension (+17% on exports, +24% on imports in 2022).

The geopolitical instability, mainly the Ukrainian conflict, put considerable pressure on prices and raw material availability.

Yet Portugal dependence in imports of raw material still increased: tourism did grow considerable, and with it the demand for fish and seafood products, depict the international price changes. The aquaculture products seem to gain space to the traditional fishing ones.

Most of the GVA and profits were generated by the companies from 50 to 249 and with 250 or more persons employed; the latter one not reported because of confidentiality issues.

From 2021, above all, the Portuguese economic and social performance that affects the sector is increasingly stabilized, even growing. The fish industry expectations (under a strong demand from the domestic market, including the tourism and gastronomic sector) are now based on product valorisation, investments in innovation and modernizing processes, digital transition and circular economy. They are in a process of discovering new possibilities, adapting, either the Brexit or the remains of the COVID19 impact on catches, supply chain, availability and international prices.

To achieve that purpose, several lines of investment were put in order: projects for fish industry approved under EMFF MAR2020 and RRF are ongoing, with an expected production boost. The actual sector objective seems based on a strategic intervention to develop a structural, lasting and impactful response, considering the energy and manpower costs impact, paving the way for a competitive yet cohesive and inclusive economy, also more decarbonised and sustainable.

It is expected that production from Portuguese fish industry, either for domestic market and exports, continues to grow in the next years.

Table 8.20.3 Main economic performance indicators by company size, Portugal, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
From 0 to 9 persons employed										
Enterprises	62	61	63	68	83	77	72	68	73	7%
Production value	14.2	18.5	11.9	15.7	23.7					
Turnover or gross premiums written	20.5	26.6	19.2	24.3	45.1					
Value added at factor cost	2.2	2.7	2.0	1.9	5.2					
Gross operating surplus	1.0	1.3	0.8	0.1	2.6					
From 10 to 19 persons employed										
Enterprises	23	20	20	17	15	12	12	8	11	38%
Production value	46.2	37.3	24.9	24.0	29.6	14.1	21.6	10.7	20.1	88%
Turnover or gross premiums written	73.6	60.4	39.5	36.4	38.7	28.7	34.8	19.1	28.1	47%
Value added at factor cost	9.1	8.1	6.6	6.4	5.5	3.1	4.1	2.2	4.5	104%
Gross operating surplus	4.3	3.9	2.8	2.9	2.0	0.6	1.4	0.4	1.1	165%
From 20 to 49 persons employed										
Enterprises	25	31	31	31	28	33	32	27	25	-7%
Production value	137.3	166.0	184.6	142.4	122.4	143.1	143.9	95.5	121.6	27%
Turnover or gross premiums written	162.2	201.1	243.5	204.7	177.4	181.8	183.4	114.6	150.7	31%
Value added at factor cost	16.9	27.2	27.2	25.5	22.1	23.7	24.0	18.6	23.0	23%
Gross operating surplus	5.1	11.6	12.4	11.0	7.2	7.0	6.9	3.2	7.6	137%
From 50 to 249 persons employed										
Enterprises	41	37	39	39	37	38	40	41	40	-2%
Production value	573.4	443.1	449.6	486.6	507.8	541.0	567.0	579.7	572.1	-1%
Turnover or gross premiums written	683.7	542.1	572.9	638.5	680.8	741.8	775.1	755.7	762.4	1%
Value added at factor cost	104.4	87.4	87.8	92.3	99.6	113.5	125.6	121.9	129.1	6%
Gross operating surplus	44.5	33.2	28.1	29.8	34.5	42.7	43.3	37.1	48.3	30%
250 persons employed or more										
Enterprises	3	4	4	5	5	6	5	6	8	33%
Production value	149.7	250.2	269.3	300.0	312.6					
Turnover or gross premiums written	189.2	300.3	292.4	326.2	343.7					
Value added at factor cost	35.6	47.0	50.7	56.3	63.0					
Gross operating surplus	18.1	23.7	26.8	28.7	32.9					

Source: Eurostat, 2023

Data coverage and quality

No Portuguese data were submitted in the 2023 fish processing sector data call. Portugal did not to collect data on the fish processing industry under the DCF / EU-MAP from 2017. Thus, DCF data were only available until 2015, as they were submitted in previous data calls.

Hence, the EWG prepared this section based on Eurostat's Structural Business Statistics data, which are publicly available.

8.21 Romania

8.21.1 Overview

According to submitted data, the Romanian fish processing sector consisted of 18 enterprises, in 2021. The structure based on the number of employees has changed by increase 33% in segment <10 employees, decrease by 10% in segment between 11-49 and increase by 25% in segment having 50-249 employees. Companies which employ more than 250 workers did not submit data in 2021.

Romanian fish processing plants are employing 1 182 people corresponding to 1 071 full time equivalent. The number of employees has fluctuated over the years independently in relation to the wavered number of enterprises.

The economic performance of Romanian fish processing industry has been fluctuating from 2013 to 2021. In 2021, the performance in economic terms has increased; the turnover was EUR 135 million (up by 33% compared to 2020), average wage also increased by 35% to EUR 12.2 thousand. Regarding employment indicators, FTE per enterprise has decreased by 8% to 59.5 in 2021, and unpaid work has declined by 6% to 4.3%. As for enterprises doing fish processing not as main activity, in 2021, there were 19 companies and turnover attributed to fish processing increased by 42% to EUR 14.3 million compared to data submitted for 2020.

However, according to Eurostat data, in 2020, there were 37 fish processing companies with a sales value that reached EUR 109.5 million. There were 1 223 persons were employed in the Romanian fish processing industry. The sector recorded a value added of EUR 14.2 million, covering 0.8% of the value added of total manufacture of food products. In 2020, the main products sold were "Prepared or preserved fish (excluding whole or in pieces and prepared meals and dishes)", "Smoked fish (excl. herrings, trout, Pacific, Atlantic and Danube salmon)" and "Crustaceans, molluscs and other aquatic invertebrates and seaweed, otherwise prepared or preserved" [49].

Table 8.21.1 Overview, Romania, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	7	10	8	19	17	18	13	18	18	0%
≤ 10 employees	0	0	1	5	2	1	3	3	4	33%
11-49 employees	5	7	4	7	11	9	5	10	9	-10%
50-249 employees	2	3	3	7	4	8	4	4	5	25%
≥ 250 employees	0	0	0	0	0	0	1	1	0	-100%
Employment (number)										
Total employees	438	510	483	1,203	1,015	1,255	1,038	1,182	1,182	0%
FTE	438	510	483	1,203	1,006	1,211	1,025	1,160	1,071	-8%
Indicators										
Turnover (million €)	20	16	15	32	99	99	88	102	135	33%
FTE per enterprise	62.6	51.0	60.4	63.3	59.2	67.3	78.8	64.5	59.5	-8%
Average wage (thousand €)	1.7	2.8	4.0	3.7	7.1	8.3	6.5	9.0	12.2	35%
Unpaid work (%)	11.1	4.0	1.7	4.6	4.2	4.2	6.1	4.6	4.3	-6%
Enterprises doing fish processing not as main activity										
Number of entreprises	24	14	18	12	15	13	12	19	19	0%
Turnover attributed to fish processing (million €)	0.0	3.6	0.5	6.6	6.8	7.7	5.3	10.0	14.3	42%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

[49] EUMOFA country profile.

8.21.2 Economic performance

In 2021, the total income for the Romanian fish processing industry reached EUR 137.3 million, which was a decrease of 34% compared to 2020. The total income consists of turnover, other income and subsidies of which turnover and other income make up for 99% and 1%, respectively. There are registered operating subsidies in the Romanian fish processing industry by EUR 0.5 million in 2021 (0.3%).

The total cost of production reached EUR 92.4 million in 2021, which was a decrease of 5% compared to 2020. The most important cost component is the purchase of fish and other raw materials, which make up for 66% of the total cost. Other operational cost covers 18%, whereas wages and salaries cover 14%. Energy cost make up for 2% of the total production cost. It is worth noting that operational costs have consequences.

Table 8.21.2 Economic performance indicators, Romania, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	19.6	15.8	14.7	31.9	98.8	98.8	87.6	101.5	135.4	33%
Other income	0.0	0.2	9.4	0.7	2.0	5.8	1.0	0.6	1.4	128%
Operating subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	194%
Total Income	19.6	16.1	24.1	32.6	100.8	104.6	88.6	102.3	137.3	34%
Expenditure (million €)										
Purchase of fish and other raw material for production	9.7	7.4	1.9	22.7	45.3	49.0	36.5	59.0	60.8	3%
Wages and salaries of staff	0.7	1.4	1.9	4.2	6.8	9.7	6.3	10.0	12.5	25%
Imputed value of unpaid labour	0.1	0.1	0.0	0.2	0.3	0.4	0.4	0.5	0.6	18%
Energy costs	0.1	0.3	0.3	0.3	0.9	1.2	1.4	1.3	1.9	45%
Other operational costs	0.1	0.1	0.2	3.1	24.3	30.2	11.4	17.0	16.7	-2%
Total production costs	10.6	9.3	4.3	30.5	77.7	90.5	56.0	87.8	92.4	5%
Capital Costs (million €)										
Depreciation of capital	0.6	0.5	0.4	0.6	3.2	3.1	3.6	3.8	3.9	2%
Financial costs, net	0.2	0.2	0.3	3.5	1.2	-2.2	0.9	-0.5	-0.8	58%
Capital Value (million €)										
Total value of assets	16.7	15.9	16.0	13.1	47.4	50.6	56.6	63.7	64.6	1%
Net Investments	0.2	0.5	0.6	0.5	3.8	7.9	7.7	1.0	1.0	0%
Subsidies on investments				0.1	0.0	0.8	0.4	0.3	0.7	115%
Debt	11.5	1.1	12.5	9.4	35.2	39.5	37.6	5.4	2.4	-57%
Economic performance (million €)										
Gross Value Added	9.8	8.2	21.7	6.5	30.2	24.2	39.2	24.8	57.5	131%
Operating Cash Flow	9.0	6.8	19.8	2.1	23.1	14.1	32.6	14.5	44.9	209%
Earning before interest and tax	8.4	6.3	19.4	1.4	19.9	10.9	29.0	10.7	41.0	284%
Net Profit	8.2	6.1	19.1	-2.0	18.7	13.1	28.1	11.2	41.7	274%
Productivity and performance Indicators										
Labour productivity (thousand €)	22.3	16.1	45.0	5.4	30.1	19.9	38.3	21.4	53.6	151%
Capital productivity (%)	58.5	51.8	135.4	49.6	63.8	47.7	69.3	39.0	88.9	
GVA margin (%)	49.8	51.3	90.3	19.9	30.0	23.1	44.3	24.3	42.0	
EBIT margin (%)	43.0	39.3	80.4	4.4	19.8	10.5	32.7	10.4	29.8	
Net profit margin (%)	41.8	37.9	79.3	-6.2	18.6	12.5	31.8	10.9	30.4	
Return on Investment (%)	50.6	39.6	120.7	11.0	42.0	21.6	51.2	16.8	63.4	
Financial position (%)	30.9	93.2	21.9	28.6	25.7	22.0	33.5	91.5	96.3	

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The depreciation of capital increased by 2% to EUR 3.9 million, whereas the net financial cost decreased to EUR minus 0.8 million. Total value of assets increased by 1%, and net investments remained unchanged (EUR 1.0 million). Subsidies on investment increased to EUR 0.7 million. Debt decreased by 57% and reached the level of EUR 2.4 million.

The Gross Value Added (GVA) is calculated as the total income deducted by energy cost, fish and other raw material cost and other operational cost. The GVA reached EUR 57.5.2 million in 2021, which was an increase of 131% from 2020, and the highest GVA generated over the period from 2011 to 2021.

In 2016, the Romanian fish processing industry experienced a negative net profit, but since then the net profit has been positive. From 2020 to 2021, the net profit increase to EUR 41.7 million, which was an increase of 274%. In line with this result, also the EBIT and the operating cash flow improved from 2020 to 2021, accordingly by 284% and 209%

All the productivity and performance parameters have improved from 2020 to 2021. The labour productivity increased by 151%, and capital productivity, EBIT, GVA, and net profit margin all reached high points. Ratio return on investment increased to 63.4%.

To sum up, the Romanian fish processing sector did not suffer any negative effects of the Covid-19 pandemic. Revenues grew much faster than costs, which translated into record financial results.

8.21.3 Breakdown by company size

There are many fluctuations regarding number of enterprises regarding employment segments, so it is hard to analyse and explain some economic performance for Romanian fish processing industry.

In 2021, segment with less than 10 employees showed a mix trend regarding economic variables compared to data showed in 2020. Total income increased nine times to EUR 2.7 million with much higher production costs by 13 times, net profit decreased to negative position EUR 0.3 million.

For companies with between 11 and 49 employees, total income increased by 57% to EUR 27.4 million with a greater increase in costs of 78% to EUR 18.6 million. Compared to the 2020 figures, economic indicators improved by over 20% and net profit was EUR 8.6 million (+27%).

Medium-sized companies with between 50 and 249 employees performed best in financial terms. In 2021, revenues increased by 78% to EUR 107.2 million and cost increased by 54% to EUR 71.2 million. EBIT improved by 159% to EUR 32.4 million so net profit rose by 162% to EUR 33.4 million.

Because of a lack of data for large companies, it is not possible to assess the financial performance of this category.

Table 8.21.3 Economic performance by company size, Romania, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income			0.1	1.1	1.3	0.8	1.5	0.3	2.7	953%
Total production costs			0.0	0.8	0.3	0.5	0.8	0.2	2.6	1206%
Gross Value Added			0.0	0.4	1.1	0.3	1.0	0.1	1.8	1178%
Operating Cash Flow			0.0	0.3	1.0	0.3	0.7	0.1	0.2	162%
Earning before interest and tax			0.0	0.1	1.0	0.3	0.7	0.0	0.0	-308%
Net Profit			0.0	-0.1	1.3	0.2	0.5	0.0	-0.3	-795%
between 11 and 49 employees										
Total Income	2.3	3.4	1.8	4.9	14.1	11.6	8.7	17.4	27.4	57%
Total production costs	2.0	2.2	1.4	8.8	11.4	10.0	6.7	10.5	18.6	78%
Gross Value Added	0.8	1.9	0.6	-3.1	4.1	3.0	3.4	8.7	10.6	21%
Operating Cash Flow	0.3	1.1	0.4	-3.9	2.7	1.5	2.0	6.9	8.7	26%
Earning before interest and tax	0.1	0.9	0.3	-4.0	2.0	1.3	1.9	6.6	8.5	29%
Net Profit	0.1	0.9	0.3	-7.2	0.1	1.6	1.7	6.8	8.6	27%
between 50 and 249 employees										
Total Income	17.3	12.7	22.3	26.7	85.4	92.3	58.3	60.1	107.2	78%
Total production costs	8.6	7.0	2.9	21.0	66.0	80.0	34.1	46.1	71.2	54%
Gross Value Added	9.0	6.4	21.0	9.2	25.1	20.9	26.8	19.9	45.1	126%
Operating Cash Flow	8.7	5.6	19.4	5.7	19.4	12.3	24.2	14.0	36.0	157%
Earning before interest and tax	8.4	5.4	19.1	5.3	16.9	9.4	22.7	12.5	32.4	159%
Net Profit	8.1	5.1	18.8	5.3	17.4	11.3	22.5	12.7	33.4	162%
greater than or equal to 250 employees										
Total Income							20.1	24.6		-100%
Total production costs							14.4	31.0		-100%
Gross Value Added							8.1	-3.9		-100%
Operating Cash Flow							5.6	-6.4		-100%
Earning before interest and tax							3.8	-8.4		-100%
Net Profit							3.4	-8.4		-100%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

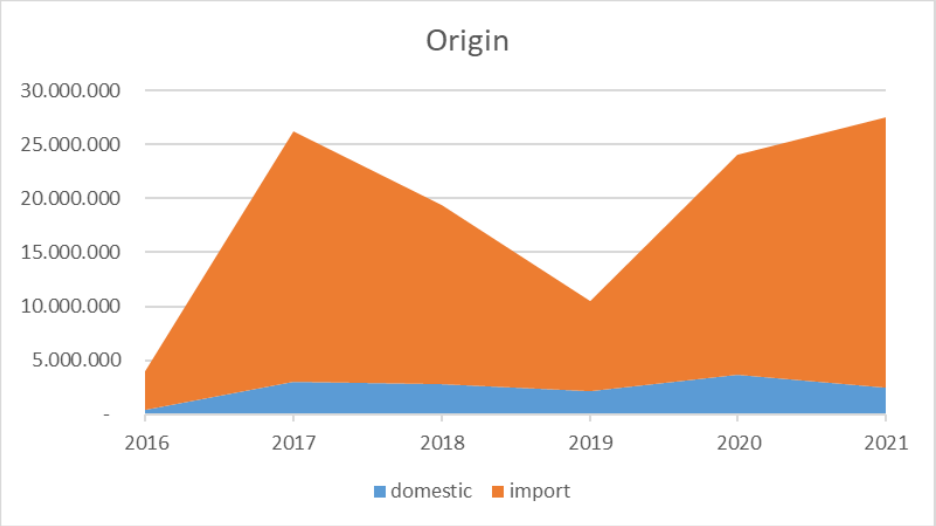
8.21.4 Socio-demographic structure

Social data of Romania for 2020-2021 was not submitted in the proper format.

8.21.5 Raw materials

For 2021, Romania's fish processing industry purchased 27 457 tonnes of raw material. Only 9% came from domestic raw material sources (2 517 tonnes). For 2020, the respective raw material purchases amounted to 24 020 tonnes of which only 3 677 tonnes were domestic.

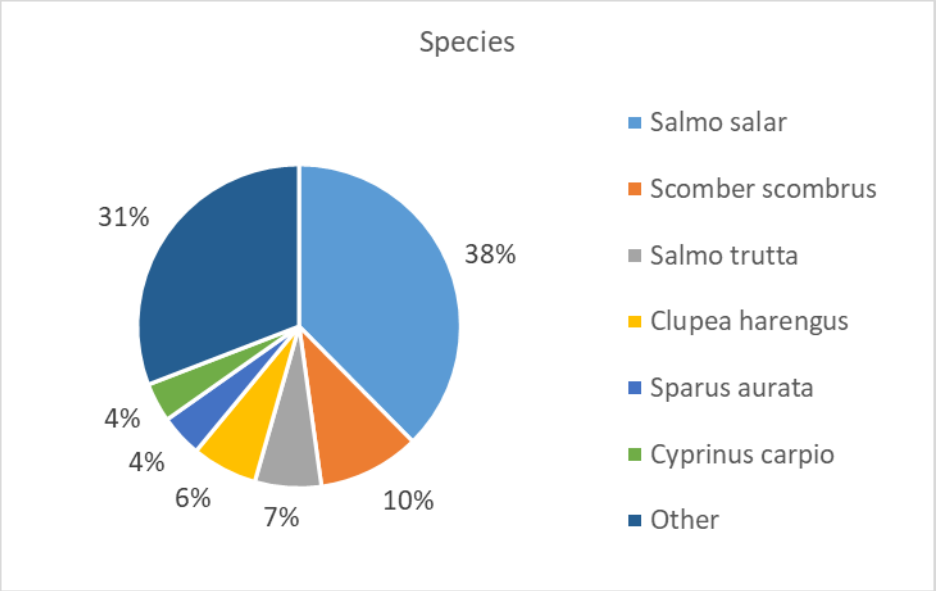
Figure 8.21.1 Main raw material used by origin, Romania, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The top six raw material species used in processing, in ordered quantities, were salmon, mackerel, trout, herring, seabream and carp, corresponding to almost 70% of the total raw material.

Figure 8.21.2 Main raw material used by species, Romania, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.21.6 Trends, drivers and outlook (including Covid-19 impact)

Covid-19 impact

Covid-19 has not negatively impacted the fish processing industry in Romania. The sector recorded record values of economic indicators in 2021, for example, net profit reached the value of EUR 41.7 million, which is an increase of 274% compared to the previous year

Romania's fish processing sector had all economic performance indicators increase more than 100% in 2021 compared to 2020 with total production costs increasing by only 5%. The economic performance of the sector shows the potential for a continued upturn

8.21.7 Data coverage and quality

Socio-demographic data for 2020 and 2021 was not available due to data submission issues. As no other data issues were reported, it is safe to assume that the exceptional economic performance of the sector in 2021, as indicated by the significant increase in all economic indicators, demonstrates that 2021 has been an outstanding year for the sector and serves as a foundation for future economic development.

8.22 Slovakia

8.22.1 Overview

Slovakia is a landlocked country with no marine fisheries or registered fleets of fishing vessels. Slovakia has a long tradition of commercial fish farming and recreational fishing. As a landlocked country, Slovakia has a limited fishery production; it is also a minor EU-27 producer of farmed products.

According to Eurostat data, in 2021 Slovakia had 4 fish processing companies, which sold EUR 34.9 million of fishery products. There were 322 persons employed in the fish processing industry in 2021. The sector recorded a value added of EUR 6.9 million, covering 1% of the value added of total manufacture of food products.

In 2021, the main products sold were "Prepared or preserved fish (excluding whole or in pieces and prepared meals and dishes)" and "Fats and oils and their fractions of fish or marine mammals (excluding chemically modified)"[50].

Table 8.22.1 Overview, Slovakia, 2020-2021

Variable	2020	2021	Δ (2020-21)
Structure (number)			
Total enterprises	3	4	33%
Total persons employed	357	322	-10%
Unpaid labour	0	0	0%
FTE	354	322	-9%
Income, expenditure and investments (million €)			
Production value	38.6	34.9	-10%
Turnover			
Total income	49.3	41.8	-15%
Total purchases of goods and services	40.9	32.5	-21%
Personnel costs	16.1	5.2	-67%
Gross investment in tangible goods	4.0	5.5	38%
Economic performance (million €)			
Gross Value Added	8.4	6.9	-18%
Gross profit	3.3	1.7	-49%

Source: Eurostat, 2023

In 2021, Slovakia's fish processing industry number of companies increased to 4 from 3 the companies doing processing fish and fish products including canned products in 2020. Despite the launch of the new fish processing plant, employment in the sector fell by 10% to 322 people, which corresponds with 312 FTE.

Generally, the financial results of Slovak fish processing plants in 2021 deteriorated compared to the data from 2020. In 2021, the production value decreased by 10% to EUR 34.9 million. Total income declined by 15% to EUR 41.8 million despite lower by 21% costs of total purchases of goods and services to EUR 32.5 million. Personnel cost also decreased by 47% to EUR 5.2 million regardless lower number of enterprises.

In 2021, GVA decreased by 18% to EUR 6.9 million and gross profit declined by 49% to EUR 1.7 million.

[50] EUMOFA country profile.

8.22.2 Data coverage and quality

According to Work Plan, data collection of economic and social data for the processing industry was not scheduled, so Slovakia did not submit data for this call.

There is no data for fish processing from 2014 to 2019 in the Eurostat database, probably for confidentiality reasons.

8.23 Slovenia

8.23.1 Overview

In 2021, there were 17 companies in the Slovenian fish processing sector. According to the number of employees, that suggest 13 companies with less than 10 employees and four companies with 11-49 employees. Among them are 11 companies with fish processing as not main activity. These companies generate EUR 14.1 million of turnover from fish processing (an increase of 4% according to 2020), which representing almost 35% of the whole turnover from fish processing activities.

In 2021, the turnover was EUR 41.7 million. Between 2008 and 2021, the turnover of Slovenian fish processing industry increased by 45% (see Table 5.23.1), while an increase of 33% is recorded in the period 2020-21.

The value of raw material decreased by 30% from 2008 to 2021 and amounted EUR 11.3 million in 2021 (increase of 18% from 2020 to 2021).

Table 8.23.1 Overview, Slovenia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	14	13	12	16	18	17	15	15	17	13%
≤ 10 employees	9	7	7	11	14	13	11	10	13	30%
11-49 employees	2	4	3	5	4	4	4	5	4	-20%
50-249 employees	3	2	2	0	0	0	0	0	0	0%
≥ 250 employees	0	0	0	0	0	0	0	0	0	0%
Employment (number)										
Total employees	351	221	209	122	132	129	126	118	116	-2%
FTE	325	211	209	112	130	117	111	85	91	7%
Indicators										
Turnover (million €)	30	24	26	31	33	34	33	31	42	33%
FTE per enterprise	23.2	16.2	17.4	7.0	7.2	6.9	7.4	5.7	5.3	-5%
Average wage (thousand €)	22.4	26.9	24.9	26.6	24.9	28.3	32.1	36.3	33.9	-7%
Unpaid work (%)	0.3	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity										
Number of entreprises	6	6	4	6	8	8	8	10	11	10%
Turnover attributed to fish processing (million €)	7.0	6.8	7.0	12.8	14.4	16.2	16.6	13.6	14.2	4%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In the Slovenian fish processing sector, there were 116 employees in 2021. According to the FTE there were 91 FTE employees in 2021. The level of employment decreased between 2008 and 2021, with total employed decreasing by more than 50% whiles the number of FTEs decreased by 57% over the period.

Mean wage per employee in the Slovenian fishing processing industry amounted EUR 33.9 thousand in 2021 and it was 44% higher from average wage in Slovenia in the same year, which was EUR 23.6 thousand. Mean wage in fish processing sector increased by 58% from 2008 to 2021, while a decrease of 7% was recorded in last period 2020-2021.

Slovenian fish processing industry mainly depends on imports of raw materials. The raw material for fish processing industry is traded from all over the world, but most of the raw material comes from the EU (Italy and Croatia), Vietnam and Indonesia and from Iceland and the Faroe Islands.

The main products in Slovenian fish processing industry are various fish cans, Tuna pate, dried cod spread, and products from cephalopods, Atlantic salmon and hake filet. Turnover from the Fish

cans and tuna pate represents more than 60% of all turnovers from Slovenian fish processing sector.

In the period 2010-2021, especially from 2010-2013, Slovenian fisheries processing sector underwent major structural changes. Small businesses are brought together in larger companies which have more impact on the market. Some of the larger companies that are dealing with different types of processing activities, separated fish processing from other activities formed a new smaller company which are exclusively engaged in the processing of fish and other marine organisms. Consequently, the share of other costs (packing costs, insurance costs etc.) in total costs has increased significantly in the period 2008-2021 (+450%). The structural changes made in Slovenian fish processing sector had impact also in Slovenian employment trends in period 2008-2021.

Most of the Slovenian fish processing companies were located on the Slovenian coast before structural changes was made in the period 2010-2013. Now we can notice even distribution of fish processing companies throughout the country.

8.23.2 Economic performance

The total amount of income generated by the Slovenian fish processing industry, in 2021, was EUR 234.6 million. This consists of EUR 41.7 million in turnover and EUR 192.9 million in other income.

Slovenia has just a few processing companies that are entirely committed to fishery products. Most companies do have different types of processing activities, of which fish may be one, but not necessarily the most important one. That is the reason for large share of other income in total income. Other income of companies with less than 50% activities in fish processing (11 companies) amounted EUR 190.4 million in 2021 which is 99% of all other income in 2021. Most of this share, EUR 167.9 million or 87% of all other income, contributed just one company which is, on the other hand, one of the largest fish processing companies and thus of great important for Slovenian fish processing industry.

In the period 2008 – 2021, Slovenian fisheries processing sector underwent major structural changes. Small businesses are brought together in larger companies which have more impact on the market. Some of the larger companies that are dealing with different types of processing activities, separated fish processing from other activities formed new smaller companies which are exclusively engaged in the processing of fish and other marine organisms. There was also a general tendency to reduce primary processing, so some enterprises also switched to resale.

Between 2020 and 2021, the turnover has increase by 33%, while the profit has decreased by 67% in the same period. GVA and OCF have decreased for 27% and 59%, respectively, in the same period. We recorded also decreasing of EBIT by 97% in the period from 2020 to 2021.

The decreased value of performance indicators is mainly due a large increased value of other operational costs, as a result of structural changes made in Slovenian fish processing sector. Other operational costs increased significantly in the period 2020-2021 (+62%).

Total operating cost increased by 42% in the period 2020-2021 and amounted EUR 40.6 million in 2021. Other operational costs are the most important cost item covers 62% of the total operating cost (+450% from 2008-2021). The cost of raw material (fish) is the second most important input in the processing industry and covers 28% of the total running cost. Raw material costs decrease by 30% from 2008 to 2021 (+18% between 2020 and 2021). Two main species used in Slovenian fish processing sector are mackerel and tuna. Wages and salaries of staff cover 8% and energy costs 2% of total operating costs in 2021. Wages and salary cost remain stable in the period 2020-2021, while energy cost recorded an increase of 172% in the same period.

The operational costs in the fish processing sector can be impacted by various factors. Transportation costs, influenced by fuel prices and transportation expenses, play a significant role as the sector relies on the movement of raw materials and finished products. Investments in technology and equipment can enhance efficiency and product quality, but these upgrades often come with upfront costs that increase operational expenses. Global events, such as the COVID-19 pandemic, have highlighted the vulnerability of supply chains, leading to higher operational costs due to delays and increased logistics expenses. Changes in packaging requirements towards more

sustainable options can also contribute to increased packaging costs. Expanding into new markets and distribution networks can drive up operational expenses as companies invest in marketing and distribution efforts. Additionally, the pursuit of innovation in product development and quality improvement through research and development initiatives can further add to operational costs in the fish processing sector.

Table 8.23.2.a Economic performance indicators, Slovenia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	30.0	24.4	25.7	30.9	32.9	33.6	33.1	31.2	41.7	33%
Other income	216.7	211.3	222.3	178.0	187.2	177.2	181.0	182.0	192.9	6%
Operating subsidies	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0%
Total Income	246.7	235.7	248.3	208.8	220.2	210.8	214.2	213.2	234.6	10%
Expenditure (million €)										
Purchase of fish and other raw material for production	8.3	7.7	8.8	11.0	10.9	10.4	10.5	9.6	11.3	18%
Wages and salaries of staff	7.2	5.6	5.2	3.0	3.3	3.3	3.6	3.1	3.1	0%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	1.5	1.0	1.2	0.3	0.5	0.8	0.6	0.3	0.8	172%
Other operational costs	14.5	11.1	13.1	14.8	21.1	15.9	15.2	15.7	25.4	62%
Total production costs	31.5	25.5	28.4	29.0	35.7	30.3	29.9	28.7	40.6	42%
Capital Costs (million €)										
Depreciation of capital	1.1	0.9	1.0	1.3	1.2	0.7	1.1	1.0	1.0	5%
Financial costs, net	0.6	0.3	0.2	0.0	-0.1	-0.4	-0.6	-0.7	-0.7	0%
Capital Value (million €)										
Total value of assets	32.1	22.2	25.7	34.3	37.9	34.5	34.3	31.5	37.4	19%
Net Investments	0.3	0.5	4.1	1.0	0.6	5.7	0.5	3.5	3.0	-13%
Subsidies on investments				0.3	0.0	0.0	0.1	0.1	0.8	787%
Debt	20.2	11.1	11.8	15.0	17.5	13.9	12.7	10.3	14.4	39%
Economic performance (million €)										
Gross Value Added	5.8	4.6	2.5	4.8	0.5	6.6	6.8	5.6	4.1	-27%
Operating Cash Flow	-1.5	-1.1	-2.3	1.8	-2.8	3.3	3.2	2.6	1.1	-59%
Earning before interest and tax	-2.5	-2.0	-3.3	0.6	-3.9	2.6	2.1	1.6	0.1	-97%
Net Profit	-3.2	-2.2	-3.5	0.6	-3.8	3.0	2.8	2.3	0.8	-67%
Productivity and performance Indicators										
Labour productivity (thousand €)	17.9	21.7	12.1	42.9	3.8	56.4	61.4	66.5	45.5	-32%
Capital productivity (%)	18.1	20.5	9.8	14.0	1.3	19.1	19.8	17.9	11.1	
GVA margin (%)	2.4	1.9	1.0	2.3	0.2	3.1	3.2	2.6	1.8	
EBIT margin (%)	-1.0	-0.8	-1.3	0.3	-1.8	1.2	1.0	0.8	0.0	
Net profit margin (%)	-1.3	-1.0	-1.4	0.3	-1.7	1.4	1.3	1.1	0.3	
Return on Investment (%)	-7.9	-8.9	-12.7	1.6	-10.4	7.5	6.2	5.1	0.2	
Financial position (%)	37.2	50.2	54.0	56.3	53.8	59.7	63.1	67.2	61.5	

Note: The total value of other income is taken into account in the total income.

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

GVA per employee was EUR 45.5 thousand in 2021, which is below the Slovenian GVA per employee average of the same year – EUR 53.7 thousand but still above the GVA per employee average in the entire Slovenian agricultural sector (EUR 28 451).

The Slovenian fish processing industry had an estimated value of assets of EUR 37.7 million and a return on investment of +0.2% (decrease of 97% between 2020 and 2021).

Table 8.23.3.b Economic performance indicators, Slovenia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	30.0	24.4	25.7	30.9	32.9	33.6	33.1	31.2	41.7	33%
Other income	2.0	1.5	3.1	3.3	3.4	1.1	1.4	0.9	2.5	195%
Operating subsidies	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0%
Total Income	32.0	25.9	29.1	34.2	36.3	34.7	34.5	32.1	44.2	38%
Expenditure (million €)										
Purchase of fish and other raw material for production	8.3	7.7	8.8	11.0	10.9	10.4	10.5	9.6	11.3	18%
Wages and salaries of staff	7.2	5.6	5.2	3.0	3.3	3.3	3.6	3.1	3.1	0%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	1.5	1.0	1.2	0.3	0.5	0.8	0.6	0.3	0.8	172%
Other operational costs	14.5	11.1	13.1	14.8	21.1	15.9	15.2	15.7	25.4	62%
Total production costs	31.5	25.5	28.4	29.0	35.7	30.3	29.9	28.7	40.6	42%
Capital Costs (million €)										
Depreciation of capital	1.1	0.9	1.0	1.3	1.2	0.7	1.1	1.0	1.0	5%
Financial costs, net	0.6	0.3	0.2	0.0	-0.1	-0.4	-0.6	-0.7	-0.7	0%
Capital Value (million €)										
Total value of assets	32.1	22.2	25.7	34.3	37.9	34.5	34.3	31.5	37.4	19%
Net Investments	0.3	0.5	4.1	1.0	0.6	5.7	0.5	3.5	3.0	-13%
Subsidies on investments				0.3	0.0	0.0	0.1	0.1	0.8	787%
Debt	20.2	11.1	11.8	15.0	17.5	13.9	12.7	10.3	14.4	39%
Economic performance (million €)										
Gross Value Added	5.8	4.6	2.5	4.8	0.5	6.6	6.8	5.6	4.1	-27%
Operating Cash Flow	-1.5	-1.1	-2.3	1.8	-2.8	3.3	3.2	2.6	1.1	-59%
Earning before interest and tax	-2.5	-2.0	-3.3	0.6	-3.9	2.6	2.1	1.6	0.1	-97%
Net Profit	-3.2	-2.2	-3.5	0.6	-3.8	3.0	2.8	2.3	0.8	-67%
Productivity and performance Indicators										
Labour productivity (thousand €)	17.9	21.7	12.1	42.9	3.8	56.4	61.4	66.5	45.5	-32%
Capital productivity (%)	18.1	20.5	9.8	14.0	1.3	19.1	19.8	17.9	11.1	
GVA margin (%)	18.2	17.6	8.8	14.0	1.4	19.0	19.7	17.6	9.3	
EBIT margin (%)	-8.0	-7.7	-11.2	1.6	-10.8	7.4	6.2	5.0	0.1	
Net profit margin (%)	-9.9	-8.6	-12.0	1.7	-10.5	8.6	8.0	7.3	1.8	
Return on Investment (%)	-7.9	-8.9	-12.7	1.6	-10.4	7.5	6.2	5.1	0.2	
Financial position (%)	37.2	50.2	54.0	56.3	53.8	59.7	63.1	67.2	61.5	

Note: In the table above just data regarding Other Income from companies which fish processing is main activity, are presented. For the calculation of economic performance indicators (GVA, OCF, labour productivity etc.) only other income from companies which fish processing is the main activity was used.

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

8.23.3 Breakdown by company size

In 2021, there were 17 companies in the Slovenian fish processing sector. Among them were 13 companies with less than 10 employees and four companies with 11-49 employees. In Slovenia, there is no middle or large fish processing company with more than 50 employees.

- **Sector less or equal 10 employees**

The total amount of income generated by this sector, in 2021, was EUR 34.6 million. This consists of EUR 13.1 million in turnover and EUR 21.5 million in other income. Total income increases for 45% over the period 2020-2021.

The value of Total production costs increased by more than 400% from 2020 to 2021 and amounted EUR 13.1 million in 2021. A large increase of total production cost in 2021 is mainly due to the entry of one company, with high other operation costs, into this segment in 2021.

In the period between 2020 and 2021, the net profit has remained relatively stable. GVA, OCF and EBIT also followed relative stable trend over the same period.

The main products in the present sector are various fish cans, dried cod spread and products from cephalopods.

- **Sector 11-49 employees**

The total amount of income generated by this sector, in 2021, was EUR 200 million. This consists of EUR 28.5 million in turnover and EUR 171.5 million in other income. Total income increases for 5% over the period 2020-2021.

The value of Total production costs decrease for 5% from 2020 to 2021 and amounted EUR 27.5 million in 2021.

In the period between 2020 and 2021, the net profit has increased by 6%. GVA, OCF and EBIT have also increased for 6% in the same period.

The main products in the present sector are tuna pate, various fish cans and products from Atlantic salmon and trout.

Table 8.23.4.a. Economic performance by company size, Slovenia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	56.2	54.0	49.7	21.7	37.9	24.9	25.3	23.8	34.6	46%
Total production costs	2.5	1.5	1.9	3.4	18.2	4.3	3.5	2.4	13.1	457%
Gross Value Added	54.4	52.8	48.1	19.1	21.0	21.5	22.7	22.0	22.3	1%
Operating Cash Flow	53.7	52.5	47.9	18.4	19.7	20.6	21.8	21.4	21.5	0%
Earning before interest and tax	53.6	52.4	47.8	18.2	19.0	20.3	21.6	21.2	21.3	0%
Net Profit	53.6	52.4	47.7	18.1	19.0	20.3	21.6	21.2	21.3	0%
between 11 and 49 employees										
Total Income	3.3	4.6	4.8	187.1	182.3	185.9	188.8	189.4	200.0	6%
Total production costs	3.0	4.3	4.3	25.7	17.5	26.0	26.3	26.3	27.5	5%
Gross Value Added	0.8	1.2	1.1	163.7	166.7	162.3	165.2	165.6	174.8	6%
Operating Cash Flow	0.3	0.3	0.4	161.4	164.8	159.9	162.5	163.1	172.5	6%
Earning before interest and tax	0.2	0.1	0.3	160.3	164.3	159.4	161.6	162.3	171.7	6%
Net Profit	0.2	0.1	0.3	160.4	164.4	159.9	162.2	163.1	172.4	6%
between 50 and 249 employees										
Total Income	187.2	177.1	193.8	0.0	0.0	0.0	0.0	0.0	0.0	
Total production costs	26.0	19.7	22.2	0.0	0.0	0.0	0.0	0.0	0.0	
Gross Value Added	167.3	161.9	175.6	0.0	0.0	0.0	0.0	0.0	0.0	
Operating Cash Flow	161.2	157.5	171.7	0.0	0.0	0.0	0.0	0.0	0.0	
Earning before interest and tax	160.4	156.8	170.9	0.0	0.0	0.0	0.0	0.0	0.0	
Net Profit	159.8	156.6	170.8	0.0	0.0	0.0	0.0	0.0	0.0	

Note: The total value of other income is taken into account in the total income.

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Table 8.23.5.b. Economic performance by company size, Slovenia, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	2.5	1.6	2.3	3.8	19.2	4.6	3.8	2.4	13.8	-19%
Total production costs	2.5	1.5	1.9	3.4	18.2	4.3	3.5	2.4	13.1	-19%
Gross Value Added	0.7	0.4	0.7	1.1	2.4	1.2	1.1	0.7	1.4	-9%
Operating Cash Flow	0.0	0.0	0.5	0.4	1.0	0.3	0.2	0.1	0.7	-18%
Earning before interest and tax	-0.1	0.0	0.4	0.2	0.4	0.1	0.1	-0.1	0.4	-16%
Net Profit	-0.1	0.0	0.3	0.2	0.4	0.0	0.0	-0.1	0.4	91%
between 11 and 49 employees										
Total Income	3.3	4.6	4.8	30.4	17.1	30.0	30.7	29.7	30.4	2%
Total production costs	3.0	4.3	4.3	25.7	17.5	26.0	26.3	26.3	27.5	1%
Gross Value Added	0.8	1.2	1.1	7.0	1.5	6.4	7.0	5.8	5.2	10%
Operating Cash Flow	0.3	0.3	0.4	4.8	-0.4	4.0	4.4	3.4	2.9	8%
Earning before interest and tax	0.2	0.1	0.3	3.7	-1.0	3.6	3.4	2.6	2.1	-4%
Net Profit	0.2	0.1	0.3	3.7	-0.9	4.0	4.1	3.3	2.9	1%
between 50 and 249 employees										
Total Income	26.1	19.8	22.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total production costs	26.0	19.7	22.2	0.0	0.0	0.0	0.0	0.0	0.0	
Gross Value Added	6.2	4.6	3.8	0.0	0.0	0.0	0.0	0.0	0.0	
Operating Cash Flow	0.1	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Earning before interest and tax	-0.7	-0.5	-0.8	0.0	0.0	0.0	0.0	0.0	0.0	
Net Profit	-1.3	-0.7	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	

Note: In the table above just data regarding Other Income from companies which fish processing is main activity, are presented. For the calculation of economic performance indicators (GVA, OCF, labour productivity etc.) only other income from companies which fish processing is the main activity was used.

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

8.23.4 Socio-demographic structure

The collection of social indicators for the Slovenian processing sector started in 2017. The variables were included in the annual economic survey, which gave the opportunity of collecting Census data. All of the mandatory parameters - age distribution, nationality, education and employment status were collected at enterprise level, so they were available by size categories. Collection of social data is planned on every three years.

Understanding the social structure of the employment landscape in the Slovenian fish processing sector is crucial for implementing policies that promote diversity and inclusion, facilitate skills development, and ensure the sustainability of the workforce in the industry. It also highlights the importance of creating opportunities for individuals of varying ages and educational backgrounds to contribute effectively to the sector's growth and development.

The social structure of employment in the Slovenian fish processing sector reflects several key elements:

1. **Gender Distribution:** While the majority of the workforce in the sector is male, there is evidence of a more balanced gender distribution in smaller companies, where women hold a slight majority.
2. **Age Groups:** The sector is primarily comprised of individuals in the 40-64 age group, indicating a significant presence of experienced workers. This might suggest a relatively stable workforce with established expertise in the industry.
3. **Educational Background:** The workforce in the sector displays a diverse educational background. While a substantial portion has a high school or specialized high school

education, a significant number also hold university degrees, suggesting a mix of skilled workers and professionals contributing to the industry's operations.

The majority employees involved in the processing sector in Slovenia in 2020 were male, representing 52% off all employees. In smaller companies (up to 10 employees), women hold a slight majority at 52%, while in medium-sized companies (11-49 employees), men dominate with a 53% share.

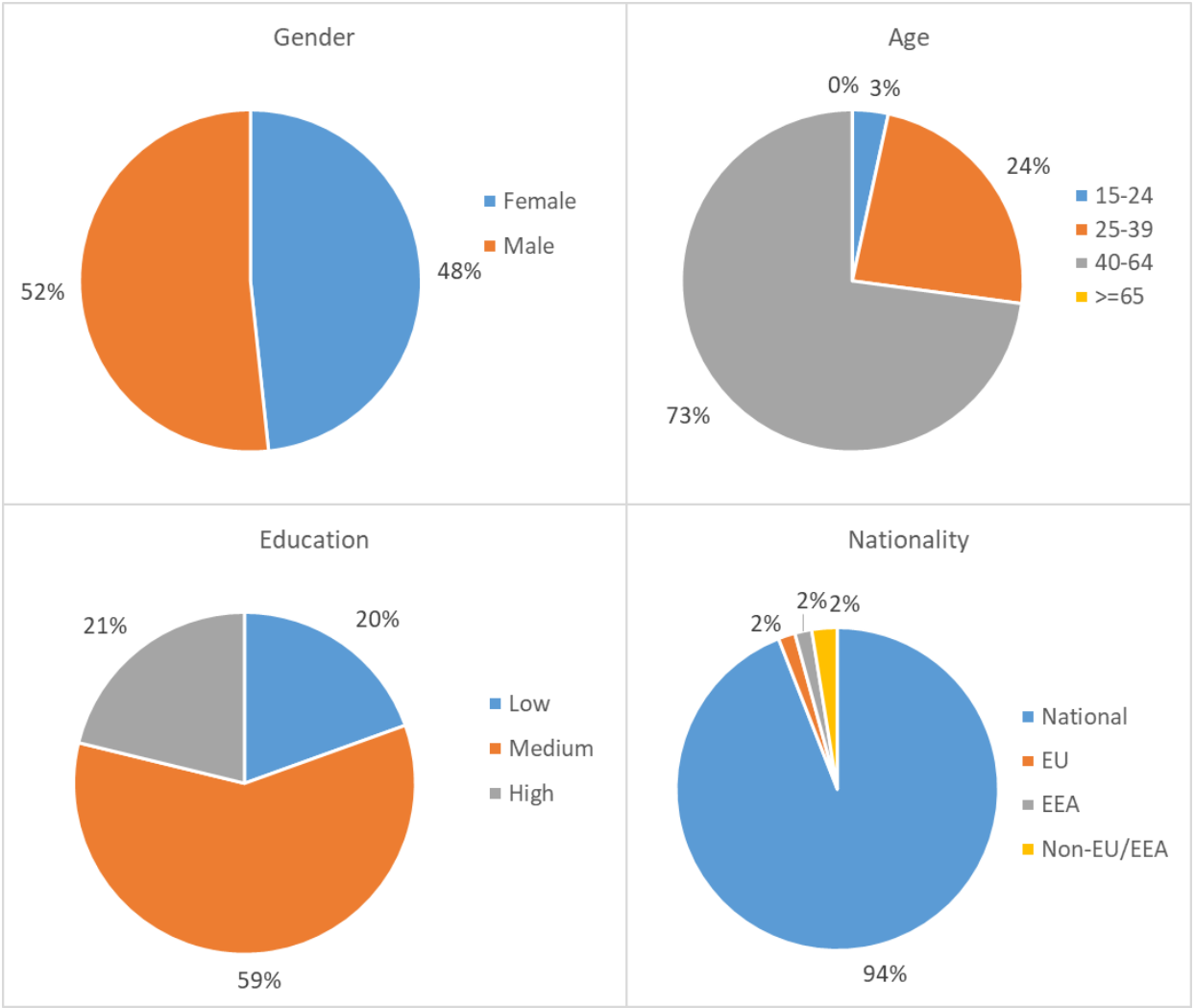
The age groups used during the data collection were 15-24, 25-39, 40-64 and >= 65.

73% of the of the total employed were in the age group 40-64, followed by 24% representing people between 25-39 years and 3% for the age group below 24 years. No employees were in age group >=65 in 2020. The percentage distribution by age is similar to the total distribution in all size categories of Slovenian fish-processing companies.

In terms of education the most common answer was high school/specialized high school corresponding to medium education level (59% - 70 people), followed by university degree equally to High education level (21% - 25 people) and primary school which is Low education level (20% - 23 people). Also, in terms of education level by size category distribution is similar than for total population.

The employment status by nationality depicts a workforce predominantly comprised of domestic employees, at 94%. Additionally, 2% of the employees are from the European Union (EU), another 2% from the European Economic Area (EEA), and 2% from non-EU/EEA countries. This balanced distribution highlights a commitment to both local talent and international diversity within the organization's workforce.

Figure 8.23.1 Socio-demographic characteristics, Slovenia, 2020



Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

8.23.5 Trends, drivers and outlook

Higher turnover, lower raw material costs and higher other operating costs were the main driving forces behind the overall improved trend in Slovenian fish processing sector. The decreased value of performance indicators is mainly due a large increased value of other operational costs, as a result of structural changes made in Slovenian fish processing sector. Other operational costs increased significantly in the period 2008-2021 (+450%).

The Slovenian seafood trade balance is relatively stable over the years and it presents a negative balance. Slovenia is a net importer of fish and fish products. In 2021, imports were approximately five times larger than export and amounted to 13 501 tonnes (EUR 77 million) of fish and other fish product (source; https://pxweb.stat.si/SiStatData/pxweb/sl/Data/-/2490101S.px). Exports amounted to 3 682 tonnes (EUR 22 million) in the same year. The majority of the imported fish and fish products come mainly from the EU. The largest Slovenian seafood import partners are Italy, Spain and Croatia. Concerning exports, the largest partners are Austria, Croatia and Hungary.

In general, the Slovenian processing sector relies on a steady inflow of raw materials. For industries that are relying mainly on EU stocks a change in the availabilities of these materials can heavily affect the industry income, production and employment.

Slovenian market for marine products is fragmented and disorganized. A large number of producers and dealers are unorganized and acting individually. Most of the products are sold directly to known customers.

The increasing awareness of the health benefits associated with consuming fish products has been also one of the drivers for the growth of the fish processing sector in Slovenia. So in the future, we can expect further development of the fisheries processing industry in Slovenia and therefore higher revenues from this sector. Because of the increased number of enterprises in the future and resulting increased competition we can expect a fall in prices of fish products and thus lower profits. High growth in energy costs, especially in 2021 and 2022, will have an additional negative impact on the business results of companies engaged in the fishing processing industry in Slovenia.

Covid-19 impact

COVID 19 did not have a noticeable negative impact on the fishing processing industry in Slovenia. Revenues of the entire sector remain relatively stable in 2021 compared to 2019. The initial contraction and large losses in the tourism sector (closure of restaurants, hotels, etc.) were offset by fish-processing companies selling to households, which greatly increased demand during this time. Sales in physical stores have largely shifted to online sales, which increase significantly, especially during first waves of pandemic.

There were a lot of problems, especially with supply chains. Problems include waiting times for trucks at border crossings and the fact that drivers are unable to enter countries because of the fear of not having to exit. Given that the agri-food supply chain is complex and multinational, any travel barriers disrupt business. To mitigate disruption, companies adjust their supply chains according to their specific circumstances.

Some problems were also caused by a number of infections in companies and related quarantines. Due to the lack of employees, some companies even had to stop or limit production for a while.

To navigate the challenges posed by the pandemic, businesses in the Slovenian fish processing sector have had to adopt flexible strategies, enhance safety measures, diversify their product portfolios, and explore alternative distribution channels to ensure business continuity and resilience in the face of ongoing uncertainties.

8.23.6 Data coverage and quality

Slovenia reported data also from companies with fish processing not as main activity to avoid confidentiality issues and because these companies are of great importance for Slovenian processing industry. In this case there is a high proportion of other income.

Because of the large differences between turnover and total income, mainly because of high value of other income, only other income from companies which fish processing is the main activity and turnover was used in calculating the economic performance indicators (GVA, OCF, labour productivity etc.).

Target populations in Slovenia for collecting economic data are all companies who have, according to the data from Veterinary Administration of the Republic of Slovenia (VURS), a license for the processing of maritime organisms and the processing involved in practice. The number of such enterprises in Slovenia in 2021 was 17. In June 2022, the questionnaires for 2021 were sent to all enterprises.

In cases where a questionnaire, as the only source, was used the response rate was 100%. In cases where the data from annual accounts of business enterprises was used the response rate was also 100%, because we have economic reports for all investigated companies.

Slovenia has a few processing companies that are entirely committed to fishery products. Most companies do have different types of processing activities, of which fish may be one, but not necessarily the most important one. This was taken into account when putting together the questionnaires and in the subsequent analysis of the data provided. Therefore, all the provided data refers just to fish processing part of all companies' activities.

8.24 Spain

8.24.1 Overview

The Spanish agri-food industry generated a turnover of EUR 142 073 million and employed 479 438 people in 2021. The Spanish food industry occupies fourth place at EU level in terms of turnover (11.4%), behind France (18.9%), Germany (16.5%) and Italy (12.8%). The most important production is the meat industry, which accounts for almost 24.8% of total turnover, followed by the manufacture of drinks (14.4%), animal feed products (12.5%) and the manufacture of other food products (10.5%) (MAPAMA, 2023a).

The seafood processing industry is not one of the main activities in an industry as important as the Spanish agri-food industry, within which it contributes with 5.4% and 5.3% of employment and turnover in 2021, respectively (MAPAMA, 2023a). However, the 604 enterprises in the Spanish seafood processing industry employed 26 042 people, and generated incomes of EUR 7 498 million in 2021 (MAPAMA, 2023a). This activity implies that the Spanish seafood processing industry is the most important within the EU sector. According to the latest available data for 2021, Spain is home to 18% of the EU seafood processing enterprises, which generate 27% of employment, and 26% of turnover.

In recent years the industry has experienced a positive evolution, not only in the number of companies, but also in terms of employment, turnover and added value. This demonstrates the competitiveness and resilience of the Spanish industry, which has managed to continue growing despite Covid-19. The data for 2020 show a negative impact on the activity in the short term with the arrival of the Covid-19, reflected in a reduction in incomes and production costs. Subsidies grew 33% in 2021, which can be explained by the different programs that governments implemented to help companies to overcome the initial difficulties generated by the Covid-19. The medium-term analysis with 2021 data shows a slightly reduction in the number of small enterprises, probably the worst positioned to resist the negative consequences of the pandemic. However, at the same time, there were more medium and large companies, and the industry experimented a recovery in terms of employment and turnover. The increase in the turnover during 2021 was accompanied by a proportionally greater increase in production costs, which negatively affected profitability and economic performance indicators.

The Spanish seafood processing industry includes the processing and preservation of fish and fish-based products of different types, such as: Chilled fish; frozen fish; dried, salted, brined, and smoked fish; processed or canned fish; frozen crustaceans, molluscs and other frozen aquatic invertebrates; canned or processed crustaceans; canned or processed molluscs and other aquatic invertebrates; fish flour, paste and pellets unfit for human consumption; waste of fish, crustaceans, molluscs and other aquatic invertebrates; and processing, boiling and other services for the production of fish articles. In 2021, the most important processed product items in value are those concerning prepared or canned fish (39%); frozen fish (13%); frozen molluscs and other aquatic invertebrates (12%); and canned or prepared molluscs and other aquatic invertebrates (11%) (MAPAMA, 2023b). Within the industry, the main processed product is canned tuna, which generates 30% of the total value.

Another vital aspect of the seafood processing industry in Spain is its importance as a socio-economic activity in coastal areas. It is a key economic activity, which acts as a driver for the entire seafood industry, both for fishing and aquaculture, and it is a step in the value chain that creates and sustain enterprises, industrial activity, employment and added value to seafood products. In addition, the processing industry has traditionally played a key role in the social and cultural organization of coastal regions, being a source of employment and incomes, particularly for women. Currently, the seafood processing industry represents a driver for the development of business innovations, the increase in the added value of seafood production and products, the creation of job opportunities for young people, and the setting of population in coastal regions.

The Spanish seafood processing industry comprised 604 enterprises in 2021, with a turnover of EUR 7.49 billion, 9% higher compared to 2020. Despite the fact that in 2021 the number of companies decreased (2%) compared to 2020, turnover raised 9% until registering the highest

data of the entire historical series considered. The distribution by size segments (number of employees as a proxy variable of size) shows a fragmented industry composed mainly by small firms. The 83% of the industry are companies below 50 workers, and companies under 10 employees represent 45%. The number of companies have decrease in 2021, but the evolution differs across size segments. Since 2013, the number of micro-companies (less than 10 employees) has decreased by 7%, while the rest of the segments, small (11-49 employees), medium (50-249) and large companies (250 or more employees) increased by 13%, 11% and 100%, respectively.

Table 8.24.1 Overview, Spain, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	640	542	598	600	606	648	584	614	604	-2%
≤ 10 employees	356	258	320	310	301	352	267	294	277	-6%
11-49 employees	203	201	196	202	219	206	221	222	227	2%
50-249 employees	72	74	71	76	75	79	82	82	82	0%
≥ 250 employees	9	9	11	12	11	11	14	16	18	13%
Employment (number)										0%
Total employees	18,448	18,340	19,033	20,497	20,367	21,984	23,781	24,325	26,042	7%
FTE	17,592	17,564	18,052	19,873	19,826	21,674	23,064	22,405	25,471	14%
Indicators										0%
Turnover (million €)	4,634	4,605	4,944	5,752	6,050	6,520	6,930	6,871	7,498	9%
FTE per enterprise	27.5	32.4	30.2	33.1	32.7	33.4	39.5	36.5	42.2	16%
Average wage (thousand €)	25.6	26.2	25.3	26.4	27.1	29.5	29.9	32.4	31.3	-3%
Unpaid work (%)	2.8	5.3	1.0	1.5	2.1	3.5	1.6	1.6	5.3	237%
Enterprises doing fish processing not as main activity										0%
Number of entreprises	0	0	0	0	0	0	0	0	0	0%
Turnover attributed to fish processing (million €)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Although small companies are still predominant, the traditional industry based on small firms has evolved into a more diverse industry. Increasingly, a greater part of the activity is concentrated in medium and large companies, more technological, more vertically integrated (fisheries and aquaculture production activities), and internationalized, both in import and export activities. As a result, main companies accumulate a large part of the activity. In 2021, the 18 largest companies generated more than EUR 4 billion in turnover, 53% of the industry total.

Despite this transformation, within the Spanish industry, two business models still coexist depending on the company size. Small companies committed to differentiation through the quality of raw materials and processing, more dependent on domestic fisheries and aquaculture production. These companies base their competitive advantage in the use of high quality national (sometimes imported) raw materials. There are also examples of enterprises producing a differentiated product based on the quality and degree of processing, which makes them less dependent on the volatility of the national supply. Medium and large companies that are committed to diversified productions, in terms of species, qualities and markets. Large companies can have their own fleet, particularly the freezer industry. Moreover, they started to be involved in aquaculture activities and have fishery subsidiaries in those countries with the main fishing grounds for their targeted species. In addition, another positive evolution of the industry is that factors such as internationalization, innovation and the use of technology are no longer exclusive to large companies. Nowadays these factors are increasingly present in medium-sized and even in small companies. Within these SME´s, there is a growing group of companies that have become international, that is, they export part of their production, looking for markets in which their products get a better price. Even, there are examples of medium size companies that are multinational, with production investments in third countries.

If we consider the business structure based on the type of processing activity carried out, we can split the industry into two main groups. Firstly, freezer companies, where there is a small group of large companies vertically integrated to get access to raw materials through investments in third countries using subsidiaries (fishing fleets, aquaculture facilities and processing plants). In recent years, these companies have diversified their activities towards more processed products, ready to

cook and ready to eat. These product innovations generate greater value added that increases their competitiveness. Also, in this segment, there is a large number of medium-sized companies that produce frozen products. Most of these companies are intermediaries or wholesalers not integrated with production activities (fisheries and aquaculture), that obtain the product from large freezers or through imports. Secondly, the canning industry, where there are representatives of two business models. On the one hand, there are large canning companies vertically integrated backwards that have production subsidiaries in third countries. On the other hand, there is a significant number of small-medium canneries differentiated through high quality products and artisanal processing. In addition to these two large segments, there is a segment of small and medium size firms dedicated to the production of salted and smoked fish, producing traditional and high-quality products. Finally, there is an increasing number of companies producing fresh packed seafood with different degrees of processing. Traditionally in Spain, fresh seafood is marketed whole and in bulk at fishmongers and supermarkets. The processing, if any, is done at the time, by the fishmonger, at the request of the customer. Previous attempts to market fresh packaged fish were unsuccessful. However, in recent years, changes in society and in consumer habits have led to an increase in demand, and therefore in the supply of these packed products, especially in big retailers. This new trend is led by the large integrated and diversified companies in the sector, with the necessary scale to supply and negotiate with large retailers. The offer of packaged fresh fish varies from the whole product to fillets, slices, pieces, as well as other presentations, and different degrees of preparation, with sauces and various prepared dishes.

Employment increased 7% in number of employees and 14% in terms of FTE from 2020, what continues the positive trend started in 2013. In 2020, there was a reduction in the number of FTEs, most likely related to the decrease in activity in the early moments of the pandemic. In 2021, with the recovery of activity, employment data has resumed the positive trend.

The companies with less than 50 employees represent 83% of industry structure in 2021. However, this segment only employs 25% and 24% of total employees and FTEs respectively. On the other hand, only 16% of companies employs more than 50 persons, but creates 75% of employment. In the long term, employment in large companies has increased while in small companies has decreased. This evolution is consistent with a greater concentration of production volumes in large companies.

The Spanish fish processing industry provides, in general, full-time jobs as the number of employees in full time equivalent shows. Despite the increase in the number of employees and full-time work, the industry still suffers a high degree of temporary contracts. The number of contracts registered for the category "Fish industry workers" was 26 479 in 2021. This number of contracts was made to 11 520 people. The full-time contracts were 20 169 while part-time contracts were 5 598. However, only 1 720 contracts were of indefinite duration, compared to 24 759 temporary contracts. These data confirm the high degree of seasonality in the employment of this industry (SEPE, 2021).

When analysing the relative FTE per enterprise there is a significant improvement in 2021 compared to 2020. The 42.2 FTE per enterprise registered in 2021 is the highest value in the historical series analysed. After a period of volatility, when from 2008 to 2012 the indicator followed a positive trend (increase of 7%) followed by a negative evolution until 2015, and between 2016 and 2018 remained stable around 32 FTE. In a context of less small businesses, increasing large ones, and rising in employment, the natural consequence is that the number of FTEs per business has increased. This figure again indicates a greater concentration of activity in larger companies. In the case of the average salary, it seems that the positive evolution of the production and the incomes of the industry has also increased salaries since 2015. In 2020 and 2021, the average salary has exceeded EUR 30 000 for the first time.

8.24.2 Economic performance

In Spain, in the last decade, the fish processing industry has been immersed in a process of technification, especially for medium and large companies. This strategy has increased production efficiency and improved the global position of the industry in processes such as the adoption of the circular economy and the decarbonisation of production. It has also reinforced already successful strategies such as product differentiation and vertical integration. It is also an industry that is

generally internationalized and has been able to adapt to changes in value chains and take advantage of the opportunities offered by globalization.

The COVID-19 pandemic interrupted the positive trend in the sector's turnover performance, but only moderately and briefly. This is seen in the 1% year-on-year decline in turnover in 2020, which is followed by a 9% recovery in turnover in 2021 from the previous year. The effects of the pandemic have therefore not had a profound and structural impact on the sector, in part, given the increase in household consumption of the sector's products during 2020.

The effects of the pandemic are also apparent in the sector's production. In 2020, production increased by 8.8% but its value declined by 0.5%, due to a lower average value per kilogram of product. The consequences of COVID-19 have been varied and there have been opposing trends that have moderated the final data for the sector. On the one hand, the closing of borders in the early stages of crisis management affected both finished products exported to third countries and imports of raw materials. However, in terms of raw materials, catches close to the locations of the processing industries, such as small pelagics, were used for the production of canned, semi-preserved and salted fish instead of being sold fresh due to their lower demand (Fernández-González et al., 2022b). On the other hand, the main market for fish processing industry products in Spain, household consumption, increased for all fish categories with respect to 2019. Per capita expenditure has increased for frozen fish (24.9%), frozen shellfish/ molluscs/ crustaceans (11.0%), cooked shellfish/ molluscs/ crustaceans (18.6%), and canned and prepared fish and shellfish (14.4%) (ANFACO, 2021). Industry production recovered in 2021, with an increase in both production and value, by 11.7% and 18.9%, respectively (INE, 2020 and 2021).

In 2020, exports decreased by 3.56% in volume and 6.18% in value. Frozen fish (1.08%), frozen fish fillets (3.92%), crustaceans (7.40%) and molluscs (22.98%) were the categories that presented negative results in export volume. However, there are two categories that improved their year-on-year results: dried, salted and/or brined or smoked fish (14.99%) and canned and prepared fish and shellfish (15.05%) (ANFACO, 2021). In fact, canned food consumption has been a widespread trend throughout Europe during the pandemic. The need to replace perishable foods with others whose consumption possibility was prolonged was a trend shared in countries with home confinement. According to the Ministry of Agriculture, Fisheries and Food (MAPAMA, 2023c), exports of fish preparations and canned fish were valued at EUR 795.38 million in 2019, while in 2020, their value increased to EUR 930.84 million. In 2021, although this figure decreased (EUR 886.45 million) it is still higher than the average of the previous five-year period. As regards exports of prepared and preserved crustaceans and molluscs, their value has remained practically unchanged in 2019 and 2020 (EUR 198 million), but it was in 2021 that there was a sharp increase (EUR 252.24 million). Despite the increase in operating subsidies in 2021, they only represent 0.33% of total income. The low dependence of total incomes on subsidies and other incomes is an indicator of the competitiveness of the processing companies, especially large and medium-sized companies, which contribute more than 81% of the sector's total turnover.

The main operational cost of the Spanish fish processing industry is the purchases of raw materials, which in 2021 accounted 72.6% of the total production costs, followed by other operational cost (13.5%), wages and salaries (11.5%) and energy (1.7%). The cost of raw material purchases has decreased in 2020 compared to 2019 but increased by more than 16% in 2021. However, considering the evolution of the quantities produced, the data suggest an increase in the prices of raw materials in 2021, after the fact that in 2020, in a context of pandemic, the prices of materials fell as one of their main marketing channels, the HORECA channel, was closed. However, this interpretation should be used with caution since the evolution of this cost depends on the evolution of the price of raw materials, but also on changes in the quantities produced of different products within the industry, which use different raw materials, and other changes in the governance context of the maritime-fishing sector.

The cost of wages and salaries increased by 6% in 2021, but its importance within the industry's cost structure remained stable. The rise in labour cost is in line with the increase in the production and the employment in the industry during 2021.

Energy cost accounted for less than 2% of total cost in 2021 but has seen an increase of 43.3% in 2021. It has been one of the cost items that have increased the most in the last year, together with

Imputed value of unpaid labour. The international energy crisis has affected this industry in which part of its processes, such as cooking or freezing, requires high energy consumption.

Finally, other operational costs have followed a positive trend, but not high enough to increase their importance within the cost structure. Even so, since 2013, these costs have risen 75%, increasing their progressive importance in the cost structure of these companies. Again, the growing importance of large companies can be one of the explanations, since they have a greater knowledge about economics and business management, and they designate resources to finance vital aspects of business activity such as marketing, promotion, logistics, access to international markets, etc.

Table 8.24.2 Economic performance indicators, Spain, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	4,633.7	4,604.9	4,944.4	5,751.9	6,050.4	6,520.0	6,930.5	6,870.8	7,498.4	9%
Other income	25.4	14.9	13.8	20.7	26.2	40.7	37.8	52.8	54.7	4%
Operating subsidies	27.4	20.8	26.8	22.0	23.5	22.7	23.1	18.9	25.2	33%
Total Income	4,686.5	4,640.7	4,984.9	5,794.5	6,100.1	6,583.4	6,991.4	6,942.5	7,578.3	9%
Expenditure (million €)										
Purchase of fish and other raw material for production	2,707.6	2,754.1	3,449.1	3,990.9	4,212.4	4,222.4	4,453.3	4,107.0	4,755.8	16%
Wages and salaries of staff	438.0	435.8	451.6	517.8	527.0	616.8	677.9	713.8	756.0	6%
Imputed value of unpaid labour	12.4	24.4	4.5	7.8	11.1	22.4	11.3	11.4	42.2	271%
Energy costs	78.2	76.3	76.4	69.4	73.8	80.7	103.4	78.9	113.1	43%
Other operational costs	506.4	511.3	555.3	620.1	640.2	757.5	844.2	871.9	883.1	1%
Total production costs	3,742.6	3,801.9	4,536.9	5,206.0	5,464.5	5,699.9	6,090.1	5,782.9	6,550.3	13%
Capital Costs (million €)										
Depreciation of capital										0%
Financial costs, net	74.5	66.3								0%
Capital Value (million €)										
Total value of assets										0%
Net Investments	81.4	94.1	76.7	71.9	109.1	170.8	118.9	160.5	187.9	17%
Subsidies on investments										0%
Debt										0%
Economic performance (million €)										
Gross Value Added	1,366.9	1,278.1	877.3	1,092.1	1,150.1	1,500.1	1,567.4	1,865.9	1,801.1	-3%
Operating Cash Flow	943.9	838.8	448.0	588.6	635.6	883.5	901.3	1,159.6	1,028.0	-11%
Earning before interest and tax										0%
Net Profit										0%
Productivity and performance Indicators										
Labour productivity (thousand €)	77.7	72.8	48.6	55.0	58.0	69.2	68.0	83.3	70.7	-15%
Capital productivity (%)										
GVA margin (%)	29.3	27.7	17.7	18.9	18.9	22.9	22.5	26.9	23.8	
EBIT margin (%)										
Net profit margin (%)										
Return on Investment (%)										
Financial position (%)										

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

Net investment has recovered in 2020 and 2021 with year-on-year growth rates of 35% and 17%. The higher number of investments in R&D&I such as the purchase of patents or machinery, as well as foreign direct investment in the sector resulting in an increase in the number of plants in this industry drive this variable.

The only economic performance indicators available to evaluate the evolution of the performance of the seafood processing industry in Spain are gross value added and operating cash flow. These indicators may not be sufficient to develop a detailed analysis of profitability and performance. The evolution of GVA between 2013 and 2021 reflects fluctuations, but in general a stable trend, except

in 2015, when it fell 31%. In the last two years considered, GVA represented more than 20% of total incomes. As data on capital depreciation are not available, it is not possible to calculate the missing indicators. Labour productivity increased 23% in 2020 compared to 2019 and during 2021 it decreased by 15%. In the last two years analysed, labour productivity has returned to values above the average for the entire period analysed, after its negative evolution during 2015-2017.

8.24.3 Breakdown by company size

Fish processing industry in Spain is a diverse and fragmented sector, composed mainly by small and medium companies and a group of larger companies. In recent times, production, value and employment is more and more concentrated in large companies. Despite only representing 16% of companies, companies that employ 50 people or more generate 81% of income and GVA.

The comparison of the evolution of economic performance by size shows few differences. In 2020, there was a reduction in revenues, and an even greater reduction in costs, which allowed companies to increase GVA in all segments. The largest companies were the only ones that improved their incomes in 2020 compared to 2019. The picture changed in 2021. The general result in all segments was an increase in the total incomes but a higher proportional increase in operational cost, negatively affecting companies' economics results.

Table 8.24.3 Economic performance by company size, Spain, 2013-2021

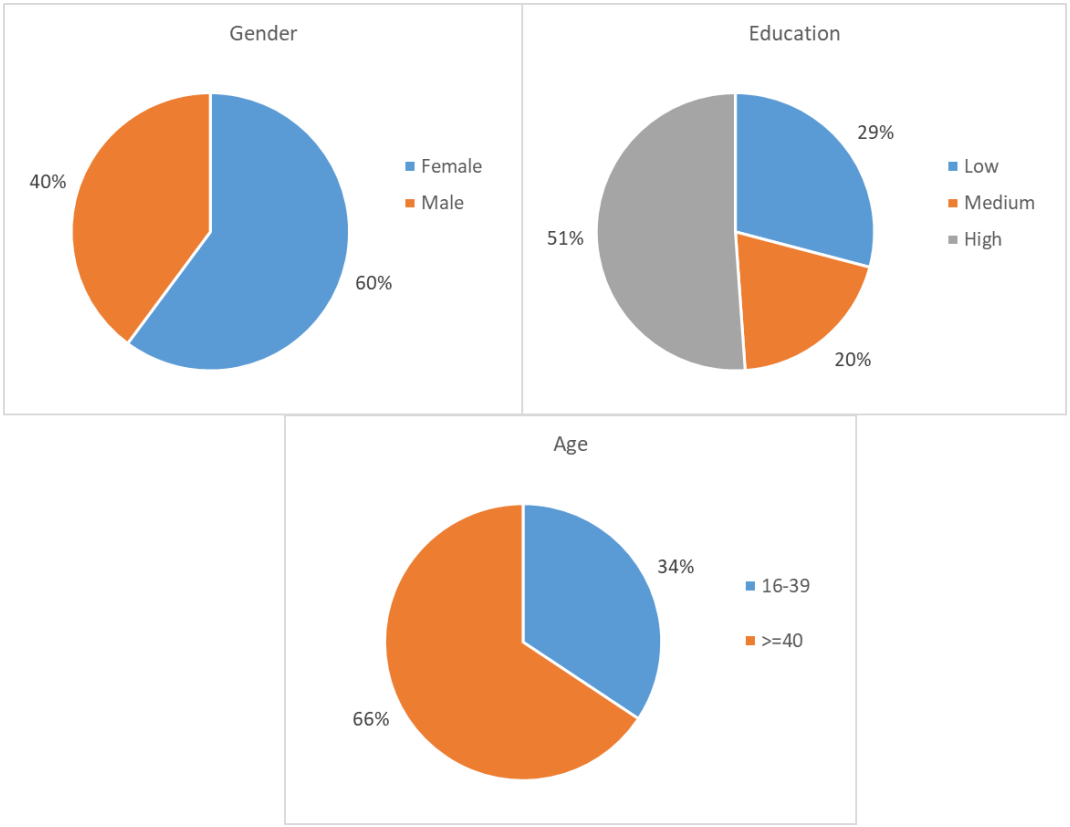
Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	198.4	111.1	171.5	140.5	135.3	181.7	148.5	126.4	142.5	13%
Total production costs	153.3	94.5	156.2	124.3	119.5	171.1	136.8	112.1	128.9	15%
Gross Value Added	66.0	31.9	27.7	29.1	26.6	26.6	27.6	30.4	31.5	4%
Operating Cash Flow	45.1	16.7	15.3	16.2	15.8	10.5	11.6	14.3	13.7	-4%
Earning before interest and tax										
Net Profit										
between 11 and 49 employees										
Total Income	821.7	1,017.1	1,052.9	964.9	1,051.9	954.9	989.2	928.6	1,260.5	36%
Total production costs	689.4	863.0	960.3	884.6	984.0	859.4	882.6	781.7	1,095.7	40%
Gross Value Added	242.4	265.4	197.0	184.9	188.0	208.6	223.2	264.3	306.5	16%
Operating Cash Flow	132.2	154.1	92.6	80.3	67.9	95.4	106.7	147.0	164.8	12%
Earning before interest and tax										
Net Profit										
between 50 and 249 employees										
Total Income	2,062.5	1,878.5	1,917.6	2,029.0	2,118.1	2,063.2	2,035.8	2,019.0	2,116.3	5%
Total production costs	1,578.6	1,472.5	1,683.5	1,925.8	2,020.1	1,863.0	1,832.1	1,777.5	1,919.0	8%
Gross Value Added	665.3	600.6	418.7	303.4	295.9	409.6	416.0	459.2	418.5	-9%
Operating Cash Flow	483.9	406.0	234.2	103.2	98.0	200.2	203.6	241.5	197.3	-18%
Earning before interest and tax										
Net Profit										
greater than or equal to 250 employees										
Total Income	1,603.9	1,633.9	1,842.9	2,660.1	2,794.9	3,383.7	3,817.9	3,868.5	4,059.0	5%
Total production costs	1,321.3	1,371.9	1,737.0	2,271.2	2,340.9	2,806.4	3,238.6	3,111.6	3,406.7	9%
Gross Value Added	393.2	380.1	233.9	574.8	639.6	855.2	900.6	1,112.0	1,044.6	-6%
Operating Cash Flow	282.6	261.9	105.9	388.9	453.9	577.3	579.4	756.9	652.3	-14%
Earning before interest and tax										
Net Profit										

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

8.24.4 Socio-demographic structure

The Spanish seafood processing industry has been traditionally intensive in the use of female employees as a result of technical division of work in the coastal areas. Women constitute the operating base of the industry since manual tasks at processing of seafood products were traditionally carried out by women. The increasing use of technology in the processing processes did not imply a great change in the labour structure, which is rather the result of sociodemographic and cultural issues. Women participation in the fish processing industry was 14 124, representing 65% of total employment in (MAPAMA, 2018). This representation was 66% and 60% in 2020 and 2021. Considering the Public Employment Services (SEPE, 2021) data about contracting in the occupational group "Workers in the fish industries" in 2019 (26 479 contracts to 11 520 people), 16 354 contracts correspond to women, but the unemployment rate among women was much higher. Within the 1 750 unemployed in 2021 who demanded this occupation, 86% were women.

Figure 8.24.1 Socio-demographic characteristics, Spain, 2021



Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

By age, more than 65% of the workforce is 40 years old or more. The highest number of contracts in this occupation (32%) was given to people over 44 years old; followed by workers between 30 and 39 old (25% of the contracts). However, the greatest number of unemployed people who apply for this occupation was among those over 44 years old (70% of total unemployed claimants). Only 6% of employment demanders and less than 30% of the new contracts are people under 30 years old (SEPE, 2021). This, together with the high employees' average age in the sector, points to the management of the generational replacement as one of the strategic aspects in the industry.

In relation to the educational level, the distribution corresponds to a 30% with low education, 20% with medium education and 50% with high education. In this last category, we find both employees with vocation high education degrees and university graduates. Between the 26 479 contracts made in 2021, 9 635 people had low education level (*ESO con titulación*). In terms of the stability and quality of work, 93% of the contracts were temporary and 76% were full-time (SEPE, 2021).

8.24.5 Trends, drivers and outlook

The COVID-19 pandemic had negative consequences for the sector but also generated opportunities. This is in line with evidence already obtained for aquaculture sector (Nielsen et al., 2023) or in the fishing sector (Asche et al., 2022; Fernández-González et al., 2022a). In the case of frozen products, half of the production was marketed through the HORECA channel. The closure of the HORECA channel in Spain and Italy, one of the countries with the highest volume of exports, had a negative impact on the sector's turnover. However, this decline in revenues was compensated by focusing on sales to retail, wholesalers, foodservice and trading, since the consumption of frozen seafood products was growing at a high rate. The same phenomenon was experienced by canned and semi-preserved foods in 2020. Sales of canned products to the end consumer increased by 5% across the board for all products.

However, in 2021, the global raw materials, the logistics crisis, and the decline in domestic consumption at the pre-pandemic level has reversed the positive trend in the canning sector. In addition to all this, there has been a 5.5% drop in exports. This scenario has led to a drop in canning production. Faced with this crisis, the sector's strategies are, on the one hand, to transfer the increase in raw materials to the final product and, on the other hand, to offer products with greater added value and more differentiation. The frozen fish and seafood sector has adapted better to the inflationary scenario. In fact, it has increased its competitiveness, diversifying the presentation of its products to attract a new type of consumer, and has improved its export levels.

Some of the trends of recent years continue its consolidation, while new ones are emerging. The concentration of the activity towards large companies, freezer and canning companies, continues. To be more precise, the growth in the figures of the sector, production and employment, is led by medium and large companies. Between these large companies, vertical integration and internationalization have become a key part of their business strategy, as a solution to access and control the supply of raw material. This practice was more extended between freezer industries, owning their own fleets, but today it is increasingly common in canning industries, accessing to facilities and processing plants near the raw material, mainly in third countries. This would be the case of mussel and anchovy canning companies, with investments in Chile and Peru.

Recently there are also examples of medium companies accessing international markets not only for exporting their products, but also for the sourcing of raw materials, even between those that mainly base the business model in the quality of the domestic seafood production. This is a consequence of the increasing relevance of diversification as a business strategy, both in the supply of raw materials and in the range of products marketed. The diversification in the product portfolio has two main objectives, the reduction of risk generated by the dependency of production on one or few species, and on the other, to meet the new trends in consumption, which compared to traditional processing (frozen, salted, canned), demand products with a higher degree of processing, preparation, and a greater variety in terms of elaborations (cuts, sauces, packaging). Freezer and canning companies are increasing their activity in the market for ready to cook and ready to eat meals.

In addition, there has been a trend in the sector for the last decade, which has intensified in the last two years. Foreign direct investment is increasingly present through the total or partial acquisition of Spanish companies in the fish processing industry. There is a growing worldwide demand for marine proteins and seafood, so the acquisition of companies in the marine-industry chain with a solid and sustained performance over time is attractive. In addition, the legal security shown by Spain means that high levels of profitability are expected, so many investors are opting for investment in Spain. Another important factor is the attractiveness of Spain as a European fishing power and the accessibility of supplying quality raw materials to the sector.

In recent years, the industry has had a series of drivers that continue to be the driving force behind its evolution. The changes in the value chain structure, such as the shortening of supply chains, new supply channels, the concentration of supply in big retailers and products diversification are some examples of drivers affecting the industry as a whole. In the case of large companies, the process of internationalization with exports to more than 130 countries, and the integration of fisheries, aquaculture and processing activities in third countries, have turned companies into multinationals with productive and commercial presence in America, Asia, Africa and Europe. In the case of small companies, differentiation based either on the quality of the product or on the

transformation process is one of the key aspects for the sustainability of these companies. In addition to these, it is convenient to highlight other drivers

Some of the most relevant strategic lines for the industry are related with the competitiveness of the production process, such as digitization, sustainable production and circular economy, biotechnology and social commitment. In the field of digitalisation, aspects such as traceability and the use of block-chain, advanced sensorisation in production plants and the use of tools to support decision-making based on big data and artificial intelligence stand out. Regarding sustainability, highlights the use of R&D&i to optimize the consumption of water, energy, reuse of by-products, or efficiency in production processes, with the aim of further enhancing the circular economy. The improvement and evolution in the materials used in packaging is another relevant aspect for companies.

In March 2021, ANFACO presented the Transformation and Resilience Plan for the sea-industry complex for the period 2021-2023, with which it aims to attract more than EUR 303 million from the "Next Generation" funds provided by the EU for the recovery of the economy in the post-COVID-19 era. The Plan presents a total of 16 projects grouped into three strategic pillars: digitalization, production and sustainable growth, and competitiveness and social commitment. The main item is earmarked for the transition to a circular economy, with EUR 85 million.

The sustainability of the industry does not reside only in the production process, but also in industry employees and the relationship of the company with the environment. More and more companies have introduced sustainability criteria in the supply of raw materials, and the products traceability. The use of certifications has also a relevant role, mainly associated with the origin of the raw material. In the case of large companies, certification in most cases occurs to meet the demand of retail customers. In the case of small businesses, as a tool to differentiate their product.

Many of these measures require research, innovation, and high investment, which is why it is usually only reachable by large companies. Producer organizations and the administrations that support them are fundamental drivers for these changes to take place. ANFACO and CONXEMAR are two examples of associations in the sector, which integrate not only processors, but also fishing, aquaculture, technology, machinery, or marketing companies, among others, thus constituting authentic sectoral clusters. Through these associations, companies obtain the scale and synergies necessary to access technical, legal, and commercial advisory services, training, laboratories, promotion, R&D&I, international cooperation and representation of the sector, among others. An example of the positive impact of these associations, ANFACO has a private technology and research centre that employs 114 highly qualified people. It provides technology and R&D services to companies in the sector, with an investment of EUR 22 million and more than EUR 7.5 million turnover in 2022, mainly to private companies. This type of initiative is a clear success story of private collaboration to develop the competitiveness of the sector.

The main species that constitute the raw material for the Spanish canning industry, which are tuna species, are managed at international level through regional fisheries organisations, the main ones being: ICCAT (International Commission for the Conservation of Atlantic Tunas), responsible for the conservation of tuna and tuna-like species in the Atlantic Ocean and adjacent areas; and IOTC (Indian Ocean Tuna Commission), established to conserve and manage the fishery resources in the Indian Ocean and adjacent seas.

The most relevant bilateral fishing agreements between the European Union and third countries for the Spanish canning industry are those that give the fleet access to tuna stocks. The fisheries agreement with the Republic of Seychelles is the most economically important tuna agreement in the EU. The protocol, renewed in 2020 for the period 2020-2026, provides tuna fishing opportunities for up to 40 purse seiners from Spain, France and Italy, and eight surface longliners from France, Spain and Portugal for a total of 50 000 tonnes of tuna per year. The EU will make a financial contribution of EUR 5.3 million per year. Of this amount, EUR 2.5 million corresponds to the payment of the right of access to Seychelles waters. The remaining EUR 2.8 million will provide sectoral support for the development of Seychelles' fisheries policy. The renewal of the fisheries agreement between the European Union and Madagascar in 2022, with a duration of 4 years, allows 22 Spanish vessels to return to fishing in the waters of this fishing ground in the Indian Ocean as of 1 July 2023. Of these, 16 are tuna seiners based mainly in the Basque Country and 6 surface longliners based in Galicia. The estimated catch is 14 000 tonnes of tuna. The fishing agreement between the European Union and the Republic of Mauritius, renewed for the period 2022-2026,

offers fishing opportunities for 40 EU purse seiners and 45 longliners, of which 22 and 12 respectively are Spanish (Basque tuna vessels and Galician surface longliners), which catch tropical tunas such as yellowfin tuna, skipjack tuna and bigeye tuna in these waters. The EU fleet will be allowed to fish up to 5 500 tonnes of tuna and tuna-like species per year.

International trade is one of the main drivers for development of the Spanish fish processing industry. On one hand, imports of raw material are key for the supply, diversification and competitiveness of the industry. On the other hand, exports are becoming more and more relevant in the industry turnover. From 2013 to the present, the trade balance has been negative. The year 2020 was the only year in the last decade in which the year-on-year growth of the trade balance was positive, but this year was an exception, as in 2021 (EUR -2 786.18 million) and 2022 (EUR -3 493.0 million) the difference between exports and imports increased again. In fact, after a decline in 2020 in value, both imports and exports have grown. Although if we analyze the volume, exports have returned to the positive trend in 2021 (7.04%) and in 2022 (0.83%), and imports have had a heterogeneous behavior with an increase in 2021 (5.38%) and a very slight decrease in 2022 (0.21%).

The outlook for the seafood processing industry is conditioned on this occasion by the uncertainty associated with the behaviour of factors in the generic environment, that is, variables that affect the entire economy. On the one hand, the evolution of macroeconomic variables such as inflation and household consumption. On the other hand, the evolution of raw materials and energy prices.

Inflation has continued to grow during 2022. Prices in Spain grew by 8.4% in general and 11.2% in food (INE, 2023). Consumer purchasing power continues to decline. Household consumption of fish products in Spain in 2022 decreased by 16% in volume and 9% in value.

In 2022, high energy costs, price volatility and restricted access to certain raw materials have characterized the evolution of the industry. In the case of the frozen seafood industry, profitability has declined, even affecting the leading companies. The level of sales, although it has increased, has done so moderately, so it has not compensated the increase in costs. The trend that seems to have settled in the sector is to offer new products for home consumption, such as individualized tray formats, the expansion of the range of gutted fish, or the creation of new gourmet packs. As for the canning sector, exports have cleaned up the sector's financial situation, as for the second consecutive year domestic consumption has declined and is approaching 2017 levels. Inflation has also had a negative effect on foreign sales. However, in view of this scenario, today the canning sector has accelerated the search for new markets such as the United States, today Asia or Latin America. In addition, not only as a solution to the current challenges faced by the industry, but also as a long-term strategy, investment in innovation has been strengthened.

8.24.6 Data coverage and quality

Fish processing industry data comes from the Spanish National Institute of Statistics (*Instituto Nacional de Estadística*). Depreciation of capital, total value of assets, subsidies on investments and debt are not available for all the periods. Financial income and financial expenditures are not available between 2015 and 2021. This issue does not allow us to estimate beyond the GVA and the Operational Cash Flow indicators. Raw material data are not available for Spain.

8.25 Sweden

8.25.1 Overview

The fish processing industry sector in Sweden is very heterogeneous with small family businesses processing their own landings as well as larger companies with large-scale industrial production. It is mainly located along the west and south coasts of Sweden, as are major parts of the fishing fleet. Smaller companies are located in north-east Sweden.

In 2021, there were 342 companies in total processing fish of which 206 had fish processing as their main activity and 136 companies processed fish but not as their main activity. The number of companies having fish processing as their main activity has been stable from 2020 to 2021. However, over the last years there has been a reduction in the number of companies by 8% (peaking at 2015 with 224 companies). This development is partly due to mergers and acquisitions.

The biggest proportion of companies in the fish processing industry are small companies with less than 10 employees. Many of them have strong links to the fishing sector as they are processing their own landings. In 2021, 85% of the companies had less than 10 employees. Companies with 50 employees are decreasing and accounted for 1% of the total number of companies in 2021.

The total number of employees decreased by 6% between 2020 and 2021 but have been fluctuating over time. However, the level of 1 740 number of employees in 2021 is at the lowest level since beginning to collect the data in 2008. The average wage level has been stable for a couple of years and but increased by 8% in 2020 and 2021.

Table 8.25.1 Overview, Sweden, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Structure (number)										
Total enterprises	222	224	224	213	209	209	206	206	206	0%
≤ 10 employees	185	188	183	177	171	168	163	163	176	8%
11-49 employees	29	28	33	28	33	35	37	37	30	-19%
50-249 employees	8	8	8	8	5	6	6	6	4	-33%
≥ 250 employees	0	0	0	0	0	0	0	0	0	0%
Employment (number)										
Total employees	2,199	2,174	2,171	2,113	2,022	2,015	1,894	1,853	1,740	-6%
FTE	1,658	1,587	1,662	1,650	1,591	1,592	1,533	1,388	1,281	-8%
Indicators										
Turnover (million €)	542	500	512	565	590	566	517	488	475	-3%
FTE per enterprise	7.5	7.1	7.4	7.7	7.6	7.6	7.4	6.7	6.2	-8%
Average wage (thousand €)	48.5	45.8	45.0	44.9	47.2	47.9	48.4	50.1	54.3	8%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity										
Number of entreprises	125	126	132	132	134	133	131	133	136	2%
Turnover attributed to fish processing (million €)	238.2	237.7	223.3	245.0	211.8	201.3	185.6	202.2	195.6	-3%

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The number of companies having fish processing as non-main activity increased successively from 2008 to 2015 but has been stable since then with a small increase in 2021.

The remaining part of this chapter concerns only companies that have fish processing as its main activity.

8.25.2 Economic performance

The performance of the Swedish fish processing industry is highly dependent on the prices of raw material, which amounted to approximately 55-60% of total production costs during the period studied. The share of raw material costs in total production costs decreased to 51% 2020 and increased to 56% 2021. As a whole, the production costs decreased in 2021 with -3%.

The industry is dependent on raw material of the right quality and quantity. If such materials cannot be found within the EU, the industry has to import it from third countries. Large companies import the majority of their total raw material, mainly from Norway. The industry's need for imported raw material varies between years. In the last years, imports of herring from Norway have increased.

In general, smaller and mid-sized companies such as primary recipient of landings is relying on local landings for its production. Larger companies focusing on secondary processing use mostly imported raw material. Therefore, in addition to variations in the prices of raw material and tariff rates, the industry is also sensitive to fluctuations in exchange rates.

Table 8.25.2 Economic performance indicators, Sweden, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
Income (million €)										
Turnover	542.0	499.8	512.5	565.1	590.4	566.2	517.1	488.3	474.6	-3%
Other income	13.6	4.2	4.6	5.2	4.9	5.5	7.4	5.0	8.6	71%
Operating subsidies	1.0	0.5	0.3	0.7	1.5	1.4	0.6	0.6	1.2	94%
Total Income	556.6	504.6	517.4	571.0	596.9	573.2	525.1	493.9	484.4	-2%
Expenditure (million €)										
Purchase of fish and other raw material for production	342.3	313.2	309.3	328.7	322.5	333.1	289.2	256.0	263.9	3%
Wages and salaries of staff	80.4	72.6	74.8	74.0	75.1	76.2	74.2	69.5	69.6	0%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	7.9	7.0	6.3	6.6	7.0	7.7	5.6	5.7	6.7	17%
Other operational costs	108.7	102.9	117.7	154.1	190.2	109.8	142.0	156.3	131.1	-16%
Total production costs	539.3	495.7	508.1	563.4	594.9	526.8	511.1	487.5	471.2	-3%
Capital Costs (million €)										
Depreciation of capital	11.9	9.7	9.7	9.1	9.7	9.1	9.1	9.4	9.5	1%
Financial costs, net	2.3	48.7	5.6	-3.3	-1.8	0.8	9.9	7.8	-6.4	-181%
Capital Value (million €)										
Total value of assets	394.9	335.1	289.8	317.7	311.2	284.5	268.0	249.2	275.1	10%
Net Investments	7.8	15.1	9.6	16.3	4.6	7.7	-2.2	2.4	9.1	274%
Subsidies on investments				0.2	0.3	0.1	0.1	0.2	0.2	16%
Debt	218.2	188.2	183.4	203.0	207.8	195.6	176.5	251.8	120.2	-52%
Economic performance (million €)										
Gross Value Added	96.7	81.0	83.8	80.9	75.5	121.2	87.6	75.4	81.6	8%
Operating Cash Flow	17.3	8.9	9.3	7.6	2.0	46.4	14.0	6.5	13.2	104%
Earning before interest and tax	5.3	-0.8	-0.4	-1.5	-7.6	37.3	4.9	-3.0	3.7	-225%
Net Profit	3.0	-49.5	-5.9	1.8	-5.9	36.5	-5.0	-10.8	10.0	-193%
Productivity and performance Indicators										
Labour productivity (thousand €)	58.3	51.0	50.4	49.0	47.5	76.1	57.2	54.3	63.7	17%
Capital productivity (%)	24.5	24.2	28.9	25.5	24.3	42.6	32.7	30.2	29.7	
GVA margin (%)	17.4	16.1	16.2	14.2	12.7	21.2	16.7	15.3	16.9	
EBIT margin (%)	1.0	-0.2	-0.1	-0.3	-1.3	6.5	0.9	-0.6	0.8	
Net profit margin (%)	0.5	-9.8	-1.1	0.3	-1.0	6.4	-0.9	-2.2	2.1	
Return on Investment (%)	1.4	-0.2	-0.1	-0.5	-2.5	13.1	1.8	-1.2	1.3	
Financial position (%)	44.8	43.8	36.7	36.1	33.2	31.2	34.2	-1.0	56.3	

Source: MS data submissions under the 2023 Fish processing data call and elaboration by the EWG.

The financial result for the sector declined between 2020 and 2021. During this period the total income of the sector decreased by EUR 9.5 million (-2%). Other operational costs fluctuate, but as

a whole total production costs have decreased the last years (-3% in 2021). Energy costs and costs for raw material increased during 2021. The development of the economic performance expressed in Euro is affected by the exchange rate[51]. In the last years, the Swedish Krona has lost value compared to the Euro.

Operational subsidies are negligible in relation to the total turnover and is only likely to have a marginal effect on competitiveness or net profits. When it comes to subsidies from the EMFF, the Swedish processing industry has mainly received subsidies for investments in processing of fisheries and aquaculture products, and to lesser extent support for investments that add value to fishery products and for marketing measures during the period 2014-2021.

Net investment increased significantly in 2021. One reason for this is that in the statistics, large companies have a big impact, as the industry as a whole is small in Sweden. Two larger companies started to build production facilities as well as storage facilities, meaning an increase of net investments by 274% in 2021, but coming from a low level of investments in 2020.

8.25.3 Breakdown by company size

The Swedish data covers three size segments. The data in the largest segment include firms with 50 employees and more. Data for companies with more than 250 employees cannot be presented separately for confidentiality reasons.

Table 8.25.3 Economic performance by company size, Sweden, 2013-2021

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	Δ (2020-21)
less than or equal to 10 employees										
Total Income	98.8	94.9	84.4	76.3	81.5	54.2	46.1	54.0	99.9	85%
Total production costs	94.1	88.8	79.7	72.2	77.0	50.8	42.0	48.8	93.1	91%
Gross Value Added	20.0	20.8	17.0	16.3	16.2	13.4	12.5	15.3	22.5	47%
Operating Cash Flow	4.7	6.1	4.7	4.0	4.4	3.4	4.0	5.3	6.8	29%
Earning before interest and tax	1.9	3.9	2.6	2.2	2.6	2.0	2.8	3.8	4.7	25%
Net Profit	-1.7	-46.3	-4.6	6.8	7.4	1.9	3.1	7.1	18.0	154%
between 11 and 49 employees										
Total Income	196.9	178.5	194.8	209.6	268.9	249.7	219.8	204.2	199.3	-2%
Total production costs	191.4	175.6	189.4	204.3	268.1	241.0	214.8	196.8	190.8	-3%
Gross Value Added	30.7	25.5	31.9	30.6	34.0	40.6	37.6	36.1	38.1	5%
Operating Cash Flow	5.5	2.9	5.4	5.3	0.8	8.6	4.9	7.4	8.5	15%
Earning before interest and tax	3.0	0.5	3.0	2.9	-3.1	4.6	0.9	3.2	4.3	33%
Net Profit	3.7	1.0	4.0	2.3	-5.4	4.8	0.2	1.3	3.5	170%
greater than or equal to 50 employees										
Total Income	260.9	231.2	238.2	285.2	246.5	269.3	259.3	235.7	185.3	-21%
Total production costs	253.8	231.3	239.0	286.9	249.7	234.9	254.2	241.9	187.4	-23%
Gross Value Added	46.1	34.7	34.9	34.0	25.3	67.2	37.6	23.9	21.0	-12%
Operating Cash Flow	7.1	-0.1	-0.8	-1.7	-3.3	34.4	5.1	-6.2	-2.1	-66%
Earning before interest and tax	0.4	-5.2	-5.9	-6.6	-7.1	30.7	1.2	-10.0	-5.4	-46%
Net Profit	1.0	-4.2	-5.3	-7.2	-7.9	29.9	-8.2	-19.2	-11.5	-40%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

A majority of the Swedish fish processing companies have 0-10 employees (85%). This segment contributes with 20% of the total turnover of the sector, which is an increase from 9% two years

[51] The exchange rates used in this chapter are for EUR 1: SEK 9.6055 in 2008, SEK 10.6213 in 2009, SEK 9.5413 in 2010, SEK 9.0355 in 2011, SEK 8.7053 in 2012, SEK 8.6494 in 2013, SEK 9.0968 in 2014, SEK 9.3562 in 2015, 9.4704 in 201, 9.6326 in 2017, 10.2567 in 2018, 10.59 in 2019, 10.48 in 2020 and 10.14 in 2021.

ago. The economic performance in this size segment, expressed as net profit and earnings before interest and tax, increased.

Companies with 11-49 employees make up 14% of the total number but answer for 41% of the sectors total turnover. The number of companies decreased but turnover increased showing a stronger economic performance in this category.

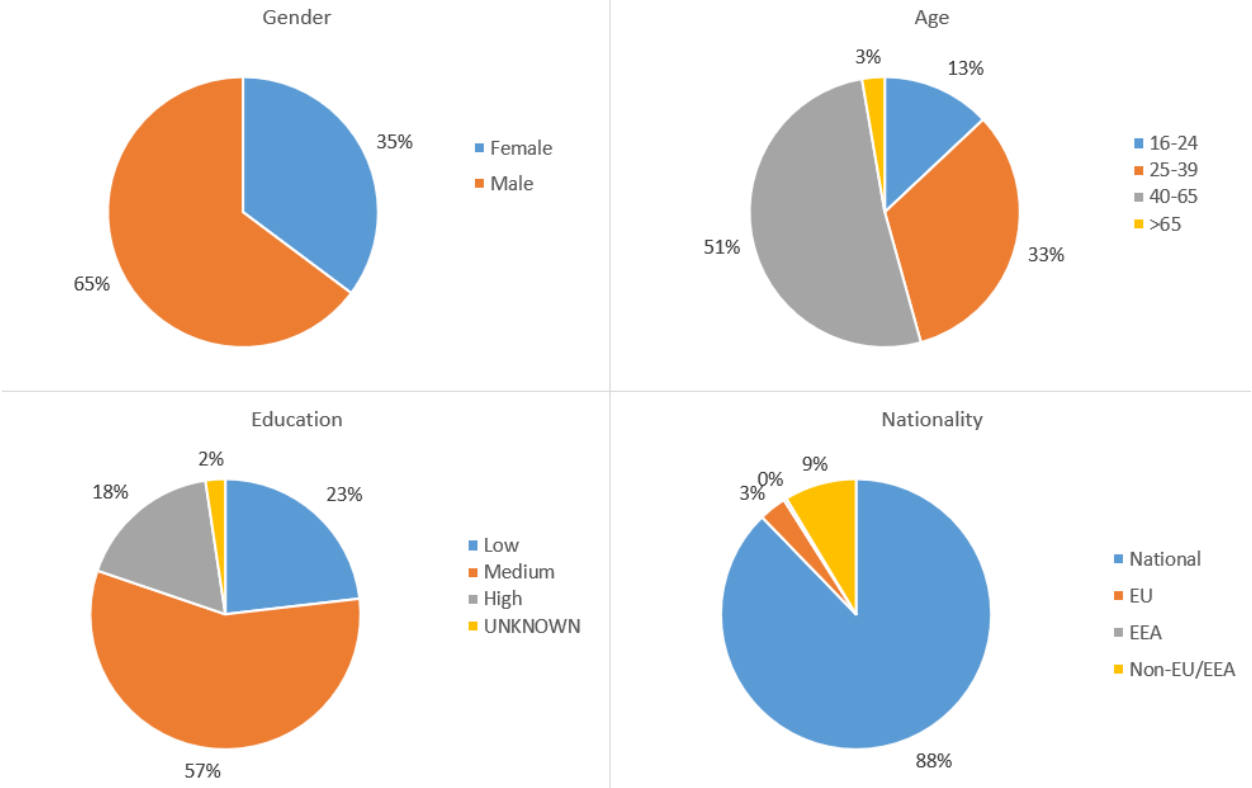
The segment with more than 50 employees makes up only 1% of companies but answer for 39% of the sector turnover. The number of companies in this category is decreasing, has gone from 6 to 4 companies in the last two years. A total decrease in turnover can also be seen.

8.25.4 Socio-demographic structure

The total number of employees in the Swedish fish processing sector was 1 740 in 2021. Most of them (88%) were Swedish citizens. 9% of the employees came from countries outside EU and EES-countries. A large part of the processing industry is located in western Sweden where the largest companies are located, the rest of the companies are relatively even distributed on the east coast where the smaller size segment is dominating.

The level of education among the employees within the fish processing industry is generally on a medium level (57%). 18% of the employees are classified as having a high education level. The average age of the employees is comparatively high with 51% in the age between 40-65 years, 33% between 25-39 years and 13% between 16-24 years.

Figure 8.25.1 Socio-demographic characteristics, Sweden, 2021



Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

8.25.5 Trends, drivers and outlook

Swedish fish processing companies are acting on a global market and, as mentioned previously, they are highly dependent on imported raw material, not least from Norway. In Sweden few species are caught, produced and consumed on the national market which increases the vulnerability for price increase of the consumed species. Herring has traditionally been consumed in connection to Christmas, Easter and Midsummer and is perceived as a traditional summer meal. Therefore, in order to increase consumption of this healthy food, work to develop new products from herring that

will be seen as a food to eat all year around is carried out. For example, herring hamburgers, which at an initial testing phase has been successful. It is also in line with the trend among younger consumers to eat less red meat.

There are strong political signals in Sweden to increase all food production nationally in order to strengthen contingency planning and improve Sweden's capacity to produce food also in a crisis situation. This also includes improved production of fish products. Therefore, in the last years work has been carried out to strengthen the blue value chain all the way from capture fisheries to consumer products. This is also emphasized in the work with the National food strategy. Pelagic fish as herring and sprat are central in this work, as they comprise the largest volume of fish in capture fisheries. Therefore, there is a wish to increase the share of landings for human consumption in relation to landings for industrial purposes (such as fish feed, oil etc.).

Stock status and healthy fish stocks are central in this work from a long-term perspective. It is important to have not only a large biomass but also a good size structure in the stocks, which matches the needs and requirements from the fish processing industry. In order to develop efficiency in the fish processing industry work has been carried to increase the share of the fish used for food as well as develop new ways to process and also use new species that are traditionally not eaten.

Brexit, the war in Ukraine and Covid-19 has had an impact on the export market. With regards to Brexit companies trading with the UK have seen increased costs in terms of costumes duties and administrative costs. They also experienced practical problems in terms of costs for storage, new routes for transports and new requirements for veterinary certificates. One example is that importing glass eels from UK was no longer possible due to CITES rules for trade with endangered species. This had an impact on the work to re-establish the eel population in Sweden since suppliers within the EU had to be found, with some increased costs. Another impact on the fish processing industry was a more limited access to pelagic fish caught in British waters.

Effects on the fish processing industry due to the Covid-19 pandemic where not very evident in Sweden. However, events in close connection to the industry has caused effects on the whole food chain. This is specially the case for activities related to fresh fish consumption. In the pelagic segment, sales on herring for human consumption has been most affected. The largest buyers of fresh fish are hotels and restaurants. Their demand for fresh fish decreased due to reduction of business. This also affected other fishing segments.

Ukraine and Russia have been important markets for Swedish herring and sprat exports. First, in 2014 and now with the Russian full-scale invasion of Ukraine these markets disappeared or where heavily affected. Exporters are working on finding new markets for their products as well as increasing exports to established markets.

Due to the war increased cost for energy (such as fuel and electricity) has had an impact for the cost on fishing which in turn has increased the price of the raw material. Fish processing industry are now experiencing high raw material prices. Energy costs for the processing plants has also increased during the last year which affected production, for example one company paused its freezing of pelagic fish due to high energy costs. Increased costs for packaging and transports have impacted the fish processing industry.

8.25.6 Data coverage and quality

There are no major data issues in the Swedish DCF data. The Swedish data in this report was bought by the Swedish Board of Agriculture from Statistics Sweden and reported by the Swedish Board of Agriculture. The reported data are consistent with the data reported to Eurostat by Statistics Sweden. The calculations of indicators from the data collected under the data collection framework may however slightly differ from figures reported to Eurostat, due to different methods of calculation or different exchange rates.

9 DATA QUALITY AND COVERAGE

As foreseen in the Regulation No 2017/1004, the Commission asked Member States to provide aggregated scientific data from within their National Data Collection programs to support scientific advice.

The data requested refers to 2020 and 2021; while previous years (2008-2019) could be submitted or resubmitted in cases where the already submitted data are considered incomplete or require correction. Data requested for 2016 to 2021, in accordance with their National Data Collection programs, can be provided under the provisions of Regulation 2017/1004. Previous years' data can be provided under the provisions of Regulation 199/2008.

Under the provisions of Commission Decision 2010/93/EU (Appendix XII), there are requested the variables: Income (turnover, subsidies and other income), Personnel costs (Wages and salaries of staff and Imputed value of unpaid labour), Energy costs, Purchase of fish and other raw material for production, Other operational costs, Capital costs (depreciation of capital and financial costs), Extraordinary costs, Total value of assets, Net Investments, Debt, Employment (Number of persons employed, gender and FTE national) and number of enterprises pertaining to the EU fish processing sector. Moreover, for enterprises that carry out fish processing but not as a main activity, it is mandatory to collect the Number of enterprises and Turnover attributed to fish processing, in the first year of each programming period. Member States who have decided to follow the extended programme are invited to submit the previously mentioned data following the segmentation by size category set out in the Commission Decision 2010/93/EU. The segmentation is set out in the Appendix XII of the Commission Decision.

Under the provisions of Council Regulation 2017/1004, there are requested the economic variables for the aquaculture sector detailed in Table 11 of the Commission Decision (EU) 2016/1251. In particular, Income (gross total sales, operating subsidies and other income), Personnel costs (Personnel costs and Imputed value of unpaid labour, and optionally Payment for external agency workers), Energy costs, Purchase of fish and other raw material for production, Other operational costs, Capital costs (consumption of fixed capital), Financial income and Financial expenses, Total value of assets, Net Investments, Subsidies in investments, Debt, Employment (Number of persons employed their FTE national, number of unpaid labour and their FTE, and Number of hours worked by employees and unpaid labour) and number of enterprises pertaining to the EU fish processing sector. Moreover, for enterprises that carry out fish processing but not as a main activity, it is possible to report the Number of enterprises and Turnover attributed to fish processing. Member States who have decided to follow the extended programme are invited to submit the previously mentioned data following the segmentation by size category set out in the Commission Decision 2010/93/EU. Moreover, it is requested to report employment by gender, age, education level and nationality.

The Data Collection Framework (DCF) and EU-MAP requires data quality assurance by Member States. Data checks were performed by the JRC through the comprehensive analysis of the data submitted and by experts attending the meeting to elaborate this report. As a consequence of these data checks data have been resubmitted by some of the countries after the deadline and during the EWG meeting.

This was the eighth call for data on the EU fish processing sector. Although overall data quality was rather good, there are still few issues that have to be improved by the Member States. Coverage has been slightly worse than the previous data call (see Table 9.1), as under the EU-MAP, the fish processing sector data collection is done on a voluntary basis.

All countries submitted the data before the deadline. Only minor data resubmissions took place afterwards, and before the deadline to correct the initial data sets. The dedicated STECF expert working group took place from 23 to 27 October 2023.

Coverage main economic data

The collection of fish processing data under the EU-MAP is voluntary. 15 MS collected and submitted data in the 2023 dedicated data call: Belgium, Bulgaria, Croatia, Denmark, Finland, Germany, Greece, Italy, Lithuania, Malta, Poland, Romania, Slovenia, Spain, and Sweden. 3 MS have never submitted any data on the fish processing sector: Austria, Czechia and Slovakia. The other MS reported fish processing data for some years, but stopped to do it.

Table 9.1 Data submission by MS in the 2023 fish processing data call

Submitted data	**Not submitted data**
Belgium	Austria
Bulgaria	Cyprus
Croatia	Czechia
Denmark	Estonia
Finland	France
Germany	Hungary
Greece	Ireland
Italy	Latvia
Lithuania	Netherlands
Malta	Portugal
Poland	Slovakia
Romania	
Slovenia	
Spain	
Sweden	

According to the Hungarian Work Plan, Hungary was supposed to report the main economic, social and raw material data. Hungary did not submit any fish processing data in this data call.

Belgium did not submit 2021 data, as in the time of the meeting, data was still being processed. Belgium provided some preliminary 2021 data for the report during the meeting.

Spain did not collected (not included in WP) and so not reported the Consumption of capital. Without consumption of capital, net profit can't be estimated and included to EU overview as well as national chapter.

Germany did not submit Operating subsidies for 2021.

Table 9.2 Coverage of the economic data for the companies doing fish processing as main activity, 2020-2021

Country	2020	2021
Belgium	X	
Bulgaria	X	X
Croatia	X	X
Denmark	X	X
Finland	X	X
Germany	X	X

Greece	X	X
Italy	X	X
Lithuania	X	X
Malta	X	X
Poland	X	X
Romania	X	X
Slovenia	X	X
Spain	X	X
Sweden	X	X

Of the countries reporting the economic data for the companies doing fish processing as main activity, Germany did not report the economic data by size category. The other 14 MS reported data by size category, with Belgium only reporting 2020 data.

Coverage data on enterprises that carry out fish processing but not as a main activity

Bulgaria and Spain did not submit data for the companies doing fish processing but not as main activity. There are some uncertainties on how the no-main activity for fish processing is estimated in Spain. While Sweden reported data for the companies doing fish processing but not as main activity after the working group, as so it could be added into its national chapter.

Table 9.3 Coverage of the economic data for the companies doing fish processing but not as main activity, 2020-2021

Country	2020	2021
Belgium		
Bulgaria		
Croatia	X	X
Denmark	X	X
Finland	X	X
Germany	X	X
Greece	X	X
Italy	X	X
Lithuania	X	X
Malta	X	X
Poland	X	X
Romania	X	X
Slovenia	X	X
Spain	X	X
Sweden		

Coverage social data

Of the countries reporting data in this data call, Italy did not report social data since it did not plan to collect it.

Belgium, Germany, Croatia, Latvia, Lithuania, Malta and Slovenia submitted the 2020 data in the 2021 fish processing data. Social data was supposed to be reported at least in 2017, 2020 and next time in 2023. Other MS have decided to collect and report social data more often.

Spain and Sweden provided the age classes in different segmentation than the one recommended by RCG ECON and no values were provided for nationality, for this, their data could not included in the EU overview.

Belgium reported 100% as unknown for the age, education and nationality of the employees.

In addition, Germany, Finland, Latvia, Poland and Sweden did not provide data by size category.

Table 9.4 Coverage of the social data for the fish processing sector, 2020-2021

Country	2020	2021
Belgium	X	
Bulgaria	X	X
Croatia	X	
Denmark	X	X
Finland	X	X
Germany	X	
Greece	X	X
Latvia	X	
Lithuania	X	
Malta	X	
Poland	X	X
Romania	X	X
Slovenia	X	
Spain	X	X
Sweden	X	X

Coverage data on raw materials

Only 7 MS reported raw materials data for both years, while Finland and Italy repoted raw materials data for only one year.

Italy submitted 2020 raw materials data, but not 2021 raw materials data.

Finland submitted 2021 raw materials data, but not 2020 raw materials data.

In addition to the missing data for half of the reporting MS, the level of information varies a lot among the countries and creates discrepancies for any comparative analysis.

Table 9.5 Coverage of the raw materials data for the fish processing sector, 2020-2021

Country	2020	2021
Belgium		
Bulgaria	X	X
Croatia	X	X
Denmark		
Finland		X
Germany	X	X
Greece	X	X
Italy	X	
Lithuania		
Malta		

Poland	X	X
Romania	X	X
Slovenia	X	X
Spain		
Sweden		

ANNEXES

Annex 1 – Data collected under DCF and EU-MAP

This report is the second report on the EU fish processing to contain data from the former DCF program for the period 2008 to 2015 and from the latest implemented EU-MAP program for the period 2016 to 2019. Below the requested variables for both programs are listed.

Main economic parameters requested under the DCF

The economic variables to be collected for the fish processing sector under the Data Collection are specified in section B of the Chapter IV and in Appendix XII of Commission Decision 2010/93/EC of the 18th of December 2010, on Adopting a multiannual Community programme pursuant to Council Regulation (EC) No 199/2008 establishing a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy.

Table A.1 DCF data requirements, 2008-2015

Variable Group	Variable	Unit
Income	Turnover	Euro
	Subsidies	Euro
	Other Income	Euro
	Total Income	Euro
Personnel Costs	Wages and salaries	Euro
	Imputed value of unpaid labour	Euro
Operational Costs	Energy Costs	Euro
	Purchase of fish and other raw material for production	Euro
	Other operational costs	Euro
Capital Costs	Depreciation of capital	Euro
	Financial Costs, net	Euro
Extraordinary Costs	Extraordinary Costs, net	Euro
Capital Value	Total Value of Assets	Euro
Investments	Net Investments	Euro
Debt	Debt	Euro
Employment	Male employees	Number
	Female employees	Number
	Total employees	Number
	Male FTE	Number
	Female FTE	Number
	Total FTE	Number
Number of enterprises	Number of enterprises	Number

Following DCF the statistical unit for the fish processing sector data collection is defined as enterprise, which is the lowest legal entity for accounting purposes. The population refers to enterprises whose primary activity is defined according to the EUROSTAT definition under NACE Code C.10.20: 'Processing and preserving of fish, crustaceans and molluscs'. More detailed definitions of parameters can be found in the glossary (Annex 3).

Main economic parameters requested under the EUMAP

Under the provisions of Council Regulation 2017/1004, there are requested the economic variables for the aquaculture sector detailed in Table 11 of the Commission Decision (EU) 2016/1251.

Table A.2 EUMAP data requirements, 2016-2019

Variable Group	**Variable**	**Unit**
Income	Gross sales (total)	Euro
	Operating Subsidies	Euro
	Other Income	Euro
Personnel Costs	Wages and salaries	Euro
	Imputed value of unpaid labour	Euro
	Payment for external agency workers (optional)	Euro
Operational Costs	Energy Costs	Euro
	Purchase of fish and other raw material for production	Euro
	Other operational costs	Euro
Capital Costs	Consumption of fixed capital	Euro
	Financial Income	Euro
	Financial Expenditure	Euro
Capital Value	Total Value of Assets	Euro
Investments	Net Investments	Euro
	Subsidies in investments	Euro
Debt	Debt	Euro
Employment	Number of persons employed	Number
	FTE national	Number
	Number of hours worked by employees and unpaid labour	Number
	Unpaid labour	Number
Number of enterprises	Number of enterprises	Number

Annex 2 – Glossary of variables and indicators reported under the DCF and EUMAP

Parameters requested under the DCF

Turnover:

"Turnover" comprises the totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties.

Turnover includes all duties and taxes on the goods or services invoiced by the unit with the exception of the VAT invoiced by the unit vis-à-vis its customer and other similar deductible taxes directly linked to turnover.

It also includes all other charges (transport, packaging, etc.) passed on to the customer, even if these charges are listed separately in the invoice. Reduction in prices, rebates and discounts as well as the value of returned packing must be deducted. Income classified as other operating income, financial income and extraordinary income in company accounts is excluded from turnover. Operating subsidies received from public authorities or the institutions of the European Union are also excluded (Structural Business Statistics (SBS) Code 12 11 0, Commission Regulation (EC) No 2700/98).

Subsidies:

"Subsidies" are the financial assistance received from public authorities or the institutions of the European Union which are excluded from turnover.

It includes direct payments, e.g. compensation for stopping trading, refunds of fuel duties or similar lump sum compensation payments; excludes social benefit payments and indirect subsidies, e.g. reduced duty on inputs such as fuel or investment subsidies.

Other income:

"Other income" refers to other operating income included in company accounts which are excluded from turnover; income coming from other activities than aquaculture, e.g. the licensing of ponds for recreational fishery purposes.

Wages and salaries:

"Wages and salaries" is equivalent to "Personnel costs" on the Structural Business Statistics.

"Personnel costs" are defined as the total remuneration, in cash or in kind, payable by an employer to an employee (regular and temporary employees as well as home workers) in return for work done by the latter during the reference period. Personnel costs also include taxes and employees' social security contributions retained by the unit as well as the employer's compulsory and voluntary social contributions.

Personnel costs are made up of:

- wages and salaries
- employers' social security costs

All remuneration paid during the reference period is included, regardless of whether it is paid on the basis of working time, output or piecework, and whether it is paid regularly or not. Included are all gratuities, workplace and performance bonuses, ex gratia payments, thirteenth month pay (and similar fixed bonuses), payments made to employees in consideration of dismissal, lodging, transport, cost of living and family allowances, commissions, attendance fees, overtime, night work etc. as well as taxes, social security contributions and other amounts owed by the employees and retained at source by the employers. Also included are the social security costs for the employer. These include employer's social security contributions to schemes for retirement pensions, sickness, maternity, disability, unemployment, occupational accidents and diseases, family allowances as well as other schemes. These costs are included regardless of whether they are statutory, collectively agreed, contractual or voluntary in nature. Payments for agency workers are not included in personnel costs. (Structural Business Statistics (SBS) Code 13 31 0, Commission Regulation (EC) No 2700/98).

Wages and salaries: Wages and salaries are defined as "the total remuneration, in cash or in kind, payable to all persons counted on the payroll (including homeworkers), in return for work done during the accounting period." regardless of whether it is paid on the basis of working time, output or piecework and whether it is paid regularly or not. Wages and salaries include the values of any social contributions, income taxes, etc. payable by the employee even if they are actually withheld by the employer and paid directly to social insurance schemes, tax authorities, etc. on behalf of the employee. Wages and salaries do not include social contributions payable by the employer. Wages and salaries include: all gratuities, bonuses, ex gratia payments, "thirteenth month payments", severance payments, lodging, transport, cost-of-living, and family allowances, tips, commission, attendance fees, etc. received by employees, as well as taxes, social security contributions and other amounts payable by employees and withheld at source by the employer. Wages and salaries which the employer continues to pay in the event of illness, occupational accident, maternity leave or short-time working may be recorded here or under social security costs, depending upon the unit's accounting practices. Payments for agency workers are not included in wages and salaries. (Structural Business Statistics (SBS) Code 13 32 0, Commission Regulation (EC) No 2700/98).

Social security costs: Employers' social security costs correspond to an amount equal to the value of the social contributions incurred by employers in order to secure for their employees the entitlement to social benefits. Social security costs for the employer include the employer's social security contributions to schemes for retirement pensions, sickness, maternity, disability, unemployment, occupational accidents and diseases, family allowances as well as other schemes. Included are the costs for all employees including homeworkers and apprentices. Charges are included for all schemes, regardless of whether they are statutory, collectively agreed, contractual or voluntary in nature. Wages and salaries which the employer continues to pay in the event of illness, occupational accident, maternity leave or short-time working may be recorded here or under wages and salaries, dependent upon the unit's accounting practices. (Structural Business Statistics (SBS) Code 13 33 0, Commission Regulation (EC) No 2700/98).

Imputed value of unpaid labour:

Unpaid workers normally refer to persons who live with the proprietor of the unit and work regularly for the unit, but do not have a contract of service and do not receive a fixed sum for the work they perform. This is limited to persons who are not included on the payroll of another unit as their principal occupation.

Thus, imputed value of unpaid labour estimates the value of the salaries that these unpaid workers would have received if their work was remunerated.

The chosen methodology to estimate this imputed value of unpaid labour should be explained by the Member State in their national programme.

Energy costs:

"Energy costs" corresponds to the "Purchases of energy products (in value)" on the Structural Business Statistics.

Purchases of all energy products during the reference period should be included in this variable only if they are purchased to be used as fuel. Energy products purchased as a raw material or for resale without transformation should be excluded. This figure should be given in value only. (Structural Business Statistics (SBS) Code 20 11 0, Commission Regulation (EC) No 2700/98).

Other operational costs:

Other operating costs should comprise outsourcing costs, property or equipment rental charges, the cost of raw materials and supplies that cannot be held in the inventory and have not been already specified (i.e. water, small items of equipment, administrative supplies, etc.), insurance premiums, studies and research costs, external personnel charges, fees payable to intermediaries and professional expenses, advertising costs, transportation charges, travel expenses, the costs of meetings and receptions, postal charges, bank charges (but not interest on bank loans) and other items of expenditure.

On the Structural Business Statistics is included inside 13 11 0 "Total purchases of goods and services".

Depreciation of capital:

Depreciation refers to the decline in value of the assets. In accounting, it is used as the allocation of the cost of tangible assets to periods in which the assets are used, in order to reflect this decline in their value.

The chosen methodology to allocate these costs over periods should be explained in the national programme. ESA (6) 6.02 to 6.05 European System of Accounts 1995 (Regulation (EC) No 2223/96, Regulation (EC) No 1267/2003, Eurostat ESA 1995 manual).

Financial costs, net:

"Financial costs, net" should be calculated as costs, coming from financial activity of the enterprise, minus the financial income.

Extraordinary costs, net:

"Extraordinary costs, net" is the difference between "Extraordinary charges" and "Extraordinary income".

"Extraordinary income" and "Extraordinary charges" are the income and costs that arise otherwise than in the course of the company's ordinary activities (Article 29 of the Fourth Council Directive 78/660/EEC of 25 July 1978).

Total value of assets:

This parameter corresponds to the Balance sheet total of the Structural Business Statistics and the Capital value in the European System of Accounts.

Balance sheet total consists of the sum of items 1 to 16 of the asset side of the balance sheet or of the sum of items 1 to 14 of the liability side of the balance sheet. (Structural Business Statistics (SBS) Code 43 30 0, Commission Regulation (EC) No 2700/98).

Capital value is the total accumulated value of all net investments in the enterprise at the end of the year. ESA 7.09 to 7.24 European System of Accounts 1995 (Regulation (EC) No 2223/96, Regulation (EC) No 1267/2003, Eurostat ESA 1995 manual).

Net Investments:

"Net investments" refers to the difference between Purchase (Gross investment in tangible goods) and Sale (Sales of tangible investment goods) of assets during the year.

Gross investment in tangible goods is the Investment during the reference period in all tangible goods. Included are new and existing tangible capital goods, whether bought from third parties or produced for own use (i.e. Capitalised production of tangible capital goods), having a useful life of more than one year including non-produced tangible goods such as land. The threshold for the useful life of a good that can be capitalised may be increased according to company accounting practices where these practices require a greater expected useful life than the one-year threshold indicated above.

All investments are valued prior to (i.e. gross of) value adjustments, and before the deduction of income from disposals. Purchased goods are valued at purchase price, i.e. transport and installation charges, fees, taxes and other costs of ownership transfer are included.

Own produced tangible goods are valued at production cost. Goods acquired through restructurations (such as mergers, take-overs, break-ups, split-off) are excluded. Purchases of small tools which are not capitalised are included under current expenditure. Also included are all additions, alterations, improvements and renovations which prolong the service life or increase the productive capacity of capital goods. Current maintenance costs are excluded as is the value and current expenditure on capital goods used under rental and lease contracts. Investment in intangible and financial assets are excluded. Concerning the recording of investments where the invoicing, delivery, payment and first use of the good may take place in different reference periods, the following method is proposed as an objective:

i) Investments are recorded when the ownership is transferred to the unit that intends to use them. Capitalised production is recorded when produced. Concerning the recording of investments made in identifiable stages, each part-investment should be recorded in the reference period in which they are made.

In practice this may not be possible and company accounting conventions may mean that the following approximations to this method need to be used:

i) investments are recorded in the reference period in which they are delivered,

ii) investments are recorded in the reference period in which they enter into the production process,

iii) investments are recorded in the reference period in which they are invoiced,

iv) investments are recorded in the reference period in which they are paid for.

Gross investment in tangible goods is based on Gross investment in land (15 12 0) + Gross investment in existing buildings and structures (15 13 0) + Gross investment in construction and alteration of buildings (15 14 0) + Gross investment in machinery and equipment (15 15 0). (Structural Business Statistics (SBS) Code 15 11 0, Commission Regulation (EC) No 2700/98).

Sales of tangible goods includes the value of existing tangible capital goods, sold to third parties. Sales of tangible capital goods are valued at the price actually received (excluding VAT), and not at book value, after deducting any costs of ownership transfer incurred by the seller. Value adjustments and disposals other than by sale are excluded. (Structural Business Statistics (SBS) Code 15 21 0. Commission Regulation (EC) No 2700/98).

Debt:

Financial assets created when creditors lend funds to debtors, either directly or through brokers, which are either evidenced by non-negotiable documents or not evidenced by documents.

Short-term loans: loans whose original maturity is normally one year or less, and in exceptional cases two years at the maximum, and loans repayable on demand.

Long-term loans: loans whose original maturity is normally more than one year, and in exceptional cases more than two years at the minimum.

"Debts" account for provisions and long- and short-term debt (STECF meeting SGECA 06-01).

Number of persons employed (Total employment):

This indicator refers to the number of people employed (including full-time and part-time employees) (SGECA-09-03). It corresponds to the Number of people employed of the Structural Business Statistics.

The number of persons employed is defined as the total number of persons who work in the observation unit (inclusive of working proprietors, partners working regularly in the unit and unpaid family workers), as well as persons who work outside the unit who belong to it and are paid by it (e.g. sales representatives, delivery personnel, repair and maintenance teams). It includes persons absent for a short period (e.g. sick leave, paid leave or special leave), and also persons on strike, but not those absent for an indefinite period. It also includes part-time workers who are regarded as such under the laws of the country concerned and who are on the pay-roll, as well as seasonal workers, apprentices and home workers on the pay-roll. The number of persons employed excludes manpower supplied to the unit by other enterprises, persons carrying out repair and maintenance work in the enquiry unit on behalf of other enterprises, as well as those on compulsory military service. Unpaid family workers refer to persons who live with the proprietor of the unit and work regularly for the unit, but do not have a contract of service and do not receive a fixed sum for the work they perform. This is limited to those persons who are not included on the payroll of another unit as their principal occupation. (Structural Business Statistics (SBS) Code 16 11 0, Commission Regulation (EC) No 2700/98).

The number of employees should be reported by gender.

FTE National:

"FTE national" is the number of employees converted in full time equivalents (calculation methodologies vary between countries).

It corresponds to the "Number of employees in full time equivalent units" of the Structural Business Statistics.

The number of employees converted into full time equivalents (FTE). Figures for the number of persons working less than the standard working time of a full-year full-time worker, should be converted into full time equivalents, with regard to the working time of a full-time full-year employee in the unit. Included in this category are people working less than a standard working day, less than the standard number of working days in the week, or less than the standard number of weeks/months in the year. The conversion should be carried out on the basis of the number of hours, days, weeks or months worked. (Structural Business Statistics (SBS) Code 16 14 0, Commission Regulation (EC) No 2700/98).

Reporting the number of FTE national by gender is optional.

Number of enterprises:

The "Number of enterprises" parameter corresponds to a count of the number of enterprises active during at least a part of the reference period (SGECA-09-03).

A count of the number of enterprises registered to the population concerned in the business register corrected for errors, in particular frame errors. Dormant units are excluded. This statistic should include all units active during at least part of the reference period. (Structural Business Statistics (SBS) Code 11 11 0, Commission Regulation (EC) No 2700/98).

Both definitions are similar. However, there are often some divergences with Eurostat data. This is mostly due to the use of the Veterinary list (which is necessary to trade with food products) to update the business register and so companies that are dormant or focusing on other products have been excluded.

Moreover, under the DCF regulation, the number of companies should be disaggregated by the number of persons employed (in ≤5; 6-10 and >10 FTE) (Structural Business Statistics (SBS) Code 16 14 0, Commission Regulation (EC) No 2700/98).

Indicators calculated under the DCF

Average wage:

The average salary or mean wage estimates the salary an employee working full time is receiving on this sector. It includes the salaries themselves, the social security costs and imputed value of unpaid labour.

Mean wage = (Wages and salaries + Imputed value of unpaid labour) / FTE

Gross Value Added (GVA):

Gross Value Added measures the contribution of the sector to the economy.

The Gross Value Added indicator calculated in this report is similar, but does not fully correspond to the Value added at factor cost of the Structural Business Statistics.

Value added at factor cost as defined in the Structural Business Statistics is the gross income from operating activities after adjusting for operating subsidies and indirect taxes. It can be calculated from turnover, plus capitalised production, plus other operating income, plus or minus the changes in stocks, minus the purchases of goods and services, minus other taxes on products which are linked to turnover but not deductible, minus the duties and taxes linked to production. Alternatively, it can be calculated from gross operating surplus by adding personnel costs. Income and expenditure classified as financial or extra-ordinary in company accounts is excluded from value added. Value added at factor costs is calculated "gross" as value adjustments (such as depreciation) are not subtracted. (Structural Business Statistics (SBS) Code 12 15 0, Commission Regulation (EC) No 2700/98).

Thus, Gross Value Added is calculated on this report as:

GVA = Turnover + Other Income – Energy costs – Purchase of fish and other raw material for production - Other Operational costs.

GVA margin or GVA to Revenues:

Gross value added to revenue ratio - indicates the share of revenue that contributes to the economy through factors of production (returns to labour and returns to capital). Indicator is calculated as

the ratio between gross value added and revenue (the sum of Turnover and Other Income). Expressed as a percentage.

$$GVA\ to\ Revenue = \frac{GVA}{Turnover + Other\ Income} 100\%$$

Operating Cash Flow (OCF)

Also referred to as gross cash flow or, i.e. the flow of cash into and out of a sector or firm over a period of time. Under the EUMAP, the indicator is calculated as follows:

OCF = Turnover + Other Income+ Operating subsidies +Subsidies on Investments – Energy costs – Wages and salaries - Imputed value of unpaid labour - Payment for external agency workers – Purchase of fish and other raw material for production – Other Operational costs.

Earnings Before Interest and Tax (EBIT):

"Earnings before interest and taxes (EBIT)" or "Operating profit" is a measure of a firm's profitability that excludes interest and income tax expenses.

EBIT = OCF – Depreciation of capital

EBIT margin:

EBIT margin is a measure of the economic performance of a sector or enterprise expressed in relative terms. It is a difference between total income and all incurred costs except for the (operating, capital and financial). Expressed in percentage. Under the EUMAP, the indicator is calculated as follows:

$$EBIT\ margin = \frac{EBIT}{Turnover\ +\ Other\ Income +\ Operating\ Subsidies\ +\ Subsidies\ on\ Investments} 100\%$$

Net profit:

"Net profit" is a measure of a firm's profitability that includes the results of financial activity of the enterprise.

Net profit = EBIT – Financial_costs_net

Net profit margin:

Net profit margin is a measure of the economic performance of a sector or enterprise expressed in relative terms. It is a difference between total income and all incurred costs (operating, capital and financial). Expressed in percentage.

$$Net\ profit\ margin = \frac{Net\ profit}{Total\ Income} 100\%$$

Return on Investment (ROI):

Return on investment is a performance measure to evaluate the profitability (efficiency) of an investment.

During the SGECA-10-04 meeting it was decided that it was more appropriate to calculate the Return on Investment using the "Earnings Before Interest and Tax (EBIT)", rather than the Net profit.

$$ROI = \frac{EBIT}{Total\_Value\_of\_Assets} * 100\%$$

Earnings Before Interest and Tax (EBIT) margin:

"Earnings before interest and taxes (EBIT) to revenue ratio" measures the margin of the companies' profit. Expressed in percentages.

$$EBIT\ to\ Revenue = \frac{EBIT}{Total\ Income} * 100\%$$

Labour productivity:

Labour productivity is calculated as the average output per worker or per time unit. It can be calculated as Gross Value Added (GVA) divided by Full Time Equivalents (FTE). This indicator describes the value added to the economy from the activity, in this case the value added to the economy by one FTE.

$$Labour\_productivity = \frac{GVA}{FTE}$$

When a MS cannot report the level of employment in FTEs, the number of employees is used as a second best alternative. However, this alternative compromises the comparison and should be clearly stated in the report.

Capital productivity:

Capital productivity is calculated as the average output per unit of capital. It can be calculated as Gross Value Added (GVA) divided by Capital value (total value of assets) in percentage. The indicator describes the value added to the economy by one unit of capital.

$$Capital\ productivity = \frac{GVA}{Total\ value\ of\ assets} 100\%$$

Parameters requested under the EUMAP

Turnover: corresponds to the DCF variable "Turnover".

Operating Subsidies: corresponds to the DCF variable "Subsidies". It refers to direct payments which general government or the institutions of the European Union make to resident producers. (ESA D.3).

Other Income: corresponds to the DCF variable "Other Income".

Wages and salaries: corresponds to the DCF variable "Wages and salaries".

Imputed value of unpaid labour: corresponds to the DCF variable "Imputed value of unpaid labour".

Energy Costs: corresponds to the DCF variable "Energy Costs".

Purchase of fish and other raw material for production: corresponds to the DCF variable "Purchase of fish and other raw material for production".

Other operational costs: corresponds to the DCF variable "Other operational costs".

Consumption of fixed capital: corresponds to the DCF variable "Depreciation of capital".

Total Value of Assets: corresponds to the DCF variable "Total Value of Assets".

Net Investments: corresponds to the DCF variable "Net Investments".

Debt: corresponds to the DCF variable "Debt".

Persons employed: corresponds to the DCF variable "Total employees".

Persons employed FTE: corresponds to the DCF variable "Total FTE".

Financial Expenditure minus Financial Income: corresponds to the DCF variable "Financial Costs, net".

Payment for external agency workers: is an optional new variable to account for the costs of outsourced labour.

Subsidies in investments: Direct payments which general governments or the institutions of the European Union make to resident producers to finance all or part of the costs of their acquiring assets related to the company.

Number of hours worked by employees and unpaid labour: The aggregate number of hours worked by the persons employed and the unpaid labour during the reference period.

Unpaid labour: Number of workers that have not received compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind.

Indicators calculated under the EUMAP

Average wage:

The average salary or mean wage estimates the salary an employee working full time is receiving on this sector. It includes the salaries themselves, the social security costs and imputed value of unpaid labour.

Under the EUMAP, the indicator is calculated as follows:

Mean wage = (Wages and salaries + Imputed value of unpaid labour) / (Persons employed FTE + Unpaid labour FTE)

$$\text{Mean wage} = \frac{Wages\ and\ salaries\ +\ Imputed\ value\ of\ unpaid\ labour}{Persons\ employed\ FTE\ +\ Unpaid\ labour\ FTE}$$

Gross Value Added (GVA):

Gross Value Added measures the contribution of the sector to the economy.

The Gross Value Added indicator calculated in this report is similar, but does not fully correspond to the Value added at factor cost of the Structural Business Statistics.

Value added at factor cost as defined in the Structural Business Statistics is the gross income from operating activities after adjusting for operating subsidies and indirect taxes. It can be calculated from turnover, plus capitalised production, plus other operating income, plus or minus the changes in stocks, minus the purchases of goods and services, minus other taxes on products which are linked to turnover but not deductible, minus the duties and taxes linked to production. Alternatively, it can be calculated from gross operating surplus by adding personnel costs. Income and expenditure classified as financial or extra-ordinary in company accounts is excluded from value added. Value added at factor costs is calculated "gross" as value adjustments (such as depreciation) are not subtracted. (Structural Business Statistics (SBS) Code 12 15 0, Commission Regulation (EC) No 2700/98).

Thus, under the EUMAP, the indicator is calculated as follows:

GVA = Turnover + Other Income – Energy costs – Purchase of fish and other raw material for production - Other Operational costs.

GVA margin or GVA to Revenues:

Gross value added to revenue ratio - indicates the share of revenue that contributes to the economy through factors of production (returns to labour and returns to capital). Indicator is calculated as the ratio between gross value added and revenue (the sum of Turnover and Other Income). Expressed as a percentage. Under the EUMAP, Gross Value Added is calculated as under the DCF:

$$GVA\ to\ Revenue = \frac{GVA}{Turnover + Other\ Income} 100\%$$

Operating Cash Flow (OCF)

Also referred to as gross cash flow or, i.e. the flow of cash into and out of a sector or firm over a period of time. Under the EUMAP, the indicator is calculated as follows:

OCF = Turnover + Other Income+ Operating subsidies +Subsidies on Investments – Energy costs – Wages and salaries - Imputed value of unpaid labour - Payment for external agency workers – Purchase of fish and other raw material for production – Other Operational costs.

Earnings Before Interest and Tax (EBIT):

"Earnings before interest and taxes (EBIT)" or "Operating profit" is a measure of a firm's profitability that excludes interest and income tax expenses. Under the EUMAP, the indicator is calculated as follows:

EBIT = OCF – Consumption of fixed capital.

EBIT margin:

EBIT margin is a measure of the economic performance of a sector or enterprise expressed in relative terms. It is a difference between total income and all incurred costs except for the (operating, capital and financial). Expressed in percentage. Under the EUMAP, the indicator is calculated as follows:

$$EBIT\ margin = \frac{EBIT}{Turnover\ +\ Other\ Income +\ Operating\ Subsidies\ +\ Subsidies\ on\ Investments} 100\%$$

Net profit:

"Net profit" is a measure of a firm's profitability that includes the results of financial activity of the enterprise. Under the EUMAP, the indicator is calculated as follows:

Net profit = EBIT – (Financial Expenditure - Financial Income)

Net profit margin:

Net profit margin is a measure of the economic performance of a sector or enterprise expressed in relative terms. It is a difference between total income and all incurred costs (operating, capital and financial). Expressed in percentage. Under the EUMAP, the indicator is calculated as follows:

$$Net\ profit\ margin = \frac{Net\ profit}{Turnover\ +\ Other\ Income\ +\ Operating\ Subsidies\ +\ Subsidies\ on\ Investments} 100\%$$

Return on Investment (ROI):

Return on investment is a performance measure to evaluate the profitability (efficiency) of an investment.

During the SGECA-10-04 meeting it was decided that it was more appropriate to calculate the Return on Investment using the "Earnings Before Interest and Tax (EBIT)", rather than the Net profit. Under the EUMAP, the indicator is calculated as under the DCF:

$$ROI = \frac{EBIT}{Total\_Value\_of\_Assets} * 100\%$$

Earnings Before Interest and Tax (EBIT) margin:

"Earnings before interest and taxes (EBIT) to revenue ratio" measures the margin of the companies' profit. Expressed in percentages. Under the EUMAP, the indicator is calculated as follows:

$$EBIT\ to\ Revenue = \frac{EBIT}{Turnover\ +\ Other\ Income\ +\ Operating\ Subsidies\ +\ Subsidies\ on\ Investments} * 100\%$$

Labour productivity:

Labour productivity is calculated as the average output per worker or per time unit. It can be calculated as Gross Value Added (GVA) divided by Full Time Equivalents (FTE). This indicator describes the value added to the economy from the activity, in this case the value added to the economy by one FTE. Under the EUMAP, the indicator is calculated as follows:

$$Labour\_productivity = \frac{GVA}{Persons\ employed\ FTE\ +\ Unpaid\ labour\ FTE}$$

When a MS cannot report the level of employment in FTEs, the number of employees is used as a second best alternative. However, this alternative compromises the comparison and should be clearly stated in the report.

Capital productivity:

Capital productivity is calculated as the average output per unit of capital. It can be calculated as Gross Value Added (GVA) divided by Capital value (total value of assets) in percentage. The indicator describes the value added to the economy by one unit of capital. Under the EUMAP, the indicator is calculated as under the DCF:

$$Capital\ productivity = \frac{GVA}{Total\ value\ of\ assets} 100\%$$

Annex 3 – Quality and Coverage checking procedures on the data submitted under the 2023 fish processing sector economic data call

Although the quality and coverage of the data reported under the Data Collection Framework (DCF) are a responsibility of the EU Member States, JRC (European Commission) has undertaken quality and coverage checking procedures on the data submitted, some carried out during the data uploading phase and some afterwards. The quality and coverage of the data has also been checked by national experts during the STECF EWG 23-14 meeting on the Economic Report on the fish processing industry which took place online, during the week 23 to 27 October 2023.

Fish processing data submitted under the 2023 data call and used for the STECF report have been checked in four subsequent steps. This section provides a synthetic description of each of them. More information of the quality and coverage checking procedures undertaken on DCF fish processing data are available in the JRC technical report available at:

https://dcf.ec.europa.eu/index_en

Step 1- Data checks before and during uploading procedure to the JRC database

Several data checks are already embedded in the excel templates which the Member States are required to use for uploading data on their national fish processing sector. In specific cells of these files, the data entry is restricted to certain records (e.g. acceptable codes, value types and ranges).

Furthermore, during the data uploading procedure, a number of automatic syntactic checks are carried out on the data before it is accepted by the database hosted by JRC. Syntactic checks are carried out without any specific knowledge of what the data contains or its meaning. They tell if the data is present or not and in the correct format. These checks automatically reject data that do not confirm to specific restrictions, such as ensuring textual data is validated against defined parameters lists. In addition, numeric data are checked to make sure they contain numbers and not strings.

Step 2 - Results of the data quality checks/analyses are assessed by JRC experts

Once the datasets with the fish processing data are successfully uploaded, JRC produces different analyses on the data submitted in order to facilitate the assessment of its quality and coverage. Some of these analyses are prepared and shared with National Correspondents and National Data Experts. There are also prepared analyses not specifically related to data quality, i.e., analyses on the structure and economic performance of the EU fish processing sector and overviews of the uploading status of DCF fish processing sector data.

All the analyses performed by JRC were made available to National Correspondents and National Data Experts.

Besides developing the checks and analyses, JRC experts actively participate in the analysis of their results. All quality issues (e.g. inconsistencies, outliers and missing data) concerning the data submitted, identified through the analyses performed by JRC in the data excel files, including the most relevant information concerning the problems identified (e.g. description of the problem, structural and economic indicators affected and assessed impact on the analyses of the final STECF report), together with comments and actions recommended to solve the issues.

Step 3 – National correspondents receive a list of data transmission issues and may resubmit revised data

The information on the data quality issues (and including JRC experts' comments and opinions on the action to undertake) are sent to the national correspondents or the data uploaders (each of them receives information only about the country he/she represents).

MS are requested to consider the potential anomalies listed, amend and re-submit the data as necessary. They are also requested to go over the quality analyses performed in order to detect additional (if any) problems and add them to the list. Finally, they are asked to provide feedback (i.e. whether or not the problem has been resolved, which actions have been taken and possible comments).

Step 4 – The quality and coverage of the data have been checked by the STECF Expert Working Groups

In addition to being analysed by JRC's experts, the quality and coverage of fish processing data submitted under the DCF and EU-MAP are also checked by national experts during the STECF EWG meeting. Data submitted under the 2023 fish processing data call has been checked during the EWG meeting 23-14 which took place during the week 23 to 27 October 2023.

At the beginning of the meeting, the experts are made aware of the data transmission issues of the MS assigned to them. Moreover, MS have been contacted whenever an inconsistency was found and the expert attending the meeting could not solve it by resubmitting data. Furthermore, all experts have been given access to the data dashboards. This has allowed them to visualise changes in the data whenever the MS have uploaded revised data during the meeting or submitted new templates.

The STECF EWG reported in the Data Transmission Monitoring Tool the relevant data coverage and quality issues that remained unsolved by the end of the STECF EWG meeting.

Annex 4 – Estimation protocol used by EWG 23-14 for the 2023 report

The protocol approved by STECF 19-02 for data imputations/estimation was not applied tout court by EWG 23-14 as the submissions status has changed for some MSs: For the 2023 report, based on the data series 2008-2021, the EWG agreed it was useless and inefficient to impute data in some cases missing for a 6-years period (2015-2021) and more logical and efficient to use directly Eurostat data.

For sake of clarity, in the table below the Structural Business Statistics variables, published by Eurostat on the webpage of the Annual detailed enterprise statistics for industry (NACE Rev. 2, B-E)[52] and also available for the NACE code Activity 10.20 Processing and preserving of fish, crustaceans and molluscs are reported.

As already highlighted in the Economic report of the EU fish processing sector 2017 (STECF-17-16), there is not a complete match between DCF/EUMAP variables and Eurostat/SBS ones. Indeed, during the STECF EWG 17-16, a preliminary exercise to identify potential matches were identified. EWG 21-14 used these preliminary results, further elaborating on it. The matches used for the current report are reported in Table A.3.

Table A. Error! Bookmark not defined. Matching table between DCF and Eurostat SBS variables and estimation note

Variable DCF/EUMAP	**SBS variable name up to 2020**	**SBS variable name since 2021**	**SBS variable name since 2021 (data by size)**	**EWG 23-14 note of estimation**
Number of enterprises	Enterprises	Enterprises	Enterprises	
Turnover	Turnover from the principal activity at 3-digit level NACE Rev. 2	*Net turnover*	*Net turnover*	*Turnover or gross premiums written used instead of Turnover from the principal activity as the latest not available for most Non-DCF MSs*
Personnel costs	Personnel costs	*n.a.*	*n.a.*	It can be calculated by: Wages and Salaries + Social security costs
Energy costs	Purchases of energy products	Purchases of energy products	*n.a.*	Both are in value terms
Purchase of fish and other raw material for production	*Total purchases of goods and services*	Purchases of goods and services (total)	Purchases of goods and services (total)	*Total purchases of goods and services used as a proxy of* Purchase of fish and other raw material for production *the DCF/EUMAP requirements*
Net Investments	Net investment in tangible goods	*n.a.*	*n.a.*	*SBS variable is only a proxy of the DCF/EUMAP one as it relates only to tangible goods while DCF/EUMAP include both investments in tangible and intangible. 2020 data used for 2021*
Number of persons employed	Persons employed	Persons employed	Persons employed	
Total employees	Employees	Employees	Employees	

[52] https://appsso.eurostat.ec.europa.eu/nui/show.do.

FTE national	Employees in full time equivalent units	Employees in full time equivalent units	*n.a.*	It could be approximated by: Employees in full time equivalent (in 2020) * Hours worked by employees (in 2021) / Hours worked by employees (in 2020)
Unpaid labour (number)	Unpaid persons employed	It can be calculated by:	It can be calculated by:	It can be calculated by: persons employed - employees

In particular, the following DCF/EUMAP variables are not covered by SBS and cannot be estimated:

- Operating subsidies
- Subsidies on investments
- Consumption of fixed capital
- Total value of assets
- Financial income
- Financial expenditures
- Debt
- Number of enterprises (non-main activities)
- Turnover (non-main activities)

For these reasons, some profitability indicators have been calculated and reported, in the EU overview, only for the DCF/EUMAP group of countries (e.g. Tables 3.4 and 3.6).

Furthermore, some elaboration on Eurostat/SBS data have been done for some MS, i.e., France, because of missing data for the year 2018. Considering that the number of enterprises was available, data for 2018 have been imputed by calculating weighted averages as follow (an example is reported for energy costs):

$$\text{Purchase of energy costs (year 2018} = \frac{\text{Purchase of energy costs (year 2017)} + \text{Purchase of energycosts (year 2019)}}{Number\ of\ enterprises\ (year\ 2017) + Number\ of\ enteprises\ (year\ 2019)} * Number\ of\ enterprises\ (year\ 2018)$$

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[1] - Information on EWG participant's affiliations is displayed for information only. In any case, Members of the STECF, invited experts, and JRC experts shall act independently. In the context of the STECF work, the committee members and other experts do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members and experts also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: http://stecf.jrc.ec.europa.eu/adm-declarations

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https://stecf.jrc.ec.europa.eu/web/stecf/ewg2314

List of electronic annexes documents:

EWG-23-14 – Annex 1 - EU Fish processing sector_Annex data tables.xlsx

List of Background Documents

Background documents are published on the meeting's web site on:
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List of background documents:

EWG-23-14 – Doc 1 - Declarations of invited and JRC experts (see also section XX of this report – List of participants)

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STECF

The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

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