



Fisheries and Aquaculture in Romania. Market Overview

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ABSTRACT

The paper proposes an analysis of the fisheries and aquaculture sector in Romania, based on European and national data. To carry out the research, information provided by Eurostat and the National Institute of Statistics was used. The results of the research showed that Romania occupies the last positions at the European level in the hierarchy of consumption of fishery products per capita. Massive imports of cheap products, especially from European countries, dominate the domestic market. Although there has been a relative increase in the number of fish processing plants and the value of processed output, the raw material is mainly imported, which does not encourage domestic production. Aquaculture production units are based on classic technologies, without modern systems, only fresh water resources are exploited and not marine ones. There are no strong producer associations with an impact on sectoral policies. The lack of significant investments in the fishing sector and well-defined strategies by the authorities to encourage domestic production and population consumption will continue to lead to low economic performance, the maintenance of the domestic market's dependence on imports and the depreciation of natural resources. © 2022 EAI. All rights reserved.

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1. Introduction

Fish and other aquatic products are nutritionally valuable resources for the human diet, relatively available on a planetary scale, potential solutions for meeting the world's food demand and reducing the level of food insecurity. The consumption of aquatic products is intertwined with the evolution of human society, with archaeological evidence of fishing activities and their consumption (Locker, 2007). Although natural resources represent the main source of aquatic products for human consumption, aquaculture production is becoming more and more important, against the background of the reduction of natural stocks, due to overfishing, climate changes and pollution (Angheluța et al, 2020).

The average annual consumption of fish and seafood at the European level is about 24 kg/year, about 3.3 kg higher than the global average. The highest rates of annual consumption per capita are registered in Portugal (59.91 kg) and Estonia (46.02 kg), the lowest consumption being in the Czech Republic (6.0 kg), Hungary (6.28 kg), Bulgaria (7.45 kg), respectively Romania (8.11 kg). About 75% of the fish or seafood consumed in the EU comes from wild fishing, with the rest from aquaculture. The most popular fish species consumed in Europe are tuna, salmon and cod (European Commission EC, 2022).

2. Materials and methods

Web of Science - Clarivate Analytics, SCOPUS, Google Scholar, ResearchGate were used for documentation. Other sources of scientific information, as media publications and the websites of public institutions (FAOSTAT, EUROSTAT, National Institute of Statistics) were used. Statistical data has been selected and processed, by using tabular calculation methods, represented graphically and interpreted. The results were compared, for verification, with scientific papers.

3. Short literature review

The common organization of the market for fishery and aquaculture products was the first component of European fisheries policy. The European strategy is focused on the protection of producers, focusing primarily on primary producers (fishing and aquaculture companies) and on linking market-related issues with resource management. The main achievements of the common European policy in the fisheries and aquaculture sector are represented by the achievement of common marketing standards, clear information for consumers, increasing the responsibility of producer organizations in the field of fisheries and aquaculture, the development of the Market Observatory for Fisheries and Aquaculture Products

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EUMOFA (which allowed a better knowledge of the market) and the end of the withdrawal scheme (European Parliament, 2022). The availability of aquatic products depends on the volume of natural resources, which are permanently decreasing globally, and increasingly on aquaculture production (Stanciu and Pila, 2022). Aquaculture is defined by the Food and Agriculture Organization FAO as the production of fish, crustaceans, molluscs and marine plants intended for human consumption, known generically as seafood (FAO, 2022). The most primitive form of aquaculture practiced throughout history consisted of capturing wild aquatic species and keeping them in lagoons, ponds or small artificial lakes so that they were available at all times. Beginning in the 17th century, freshwater fish stocks began to decline in some places, probably due to increases in human population, thus increasing the importance of aquaculture as an alternative source of fish (DACIAT BSB-461). The modern aquaculture process involves the propagation, storage, feeding and protection of these aquatic products (Munteanu Pila, Dincă and Stanciu, 2019). Aquaculture businesses have a high degree of profitability, currently around 50% of global seafood consumption is covered by domestic production. Aquaculture production includes algae culture, mariculture, shrimp, oyster and fish farming, including ornamental fish production (FAO, 2022).

The consumption of fish products has important beneficial effects on the health of the consumer through the presence of unsaturated fats, rich in essential fatty acids, mineral components and vitamins. The food safety of these products is essential. Reducing the risk of cardiovascular diseases proven by scientific studies (Kastorini et al, 2013; Molina-Vega et al, 2020), prevent or improve metabolic health and protective role in prevention of the metabolic syndrome (Tørris, 2016), reducing the risk of cancer colon (Lund and Kampman, 2008). With all these advantages, there are also certain risks, related to the origin of aquatic products from polluted waters, associated in particular with the presence of mercury or other pollutants (United States s Environmental Protection Agency, 2022). Pollution is increasingly affecting Romania's water resources, with a direct impact on aquatic fauna and the volume of fish catches (Pila and Stanciu, 2020; Pila and Stanciu, 2019). Worldwide, aquaculture production is increasingly present in population consumption. According to OECD estimates, the global consumption rate of these products is 20.66 live weight (kg/inhabitant/year), with higher values in Norway (54.56 kg), Japan (46.74 kg) and China (40.42 kg), the lowest rates being recorded in Brazil (9.04), India (7.63), and Turkey (5.09). (EC, 2022). Although fish is considered a healthy product by Romanians, the COVID 19 Pandemic affected the consumption of fish products, which was reduced by about 20% during 2020-2022 (Stanciu, 2022; Stanciu et al, 2021).

4. Fishing sector in Romania

According to DACIAT (2020), Romanian fishery production is ranked in the second part of the European hierarchy, occupying position 19 at EU 28 level IN 2019. Reported with world statistics (table 1).

Table 1.

1.000 tonnes	World	EU-28 %	Romania	% world	% EU-28
Catches	93.519	4.824	11	0,012	0,23
Aquaculture	120.104	1.367	13	0,011	0,94
Total	213.623	6.191	24	0,011	0,38

Source Author, by using DACIAT (2020)

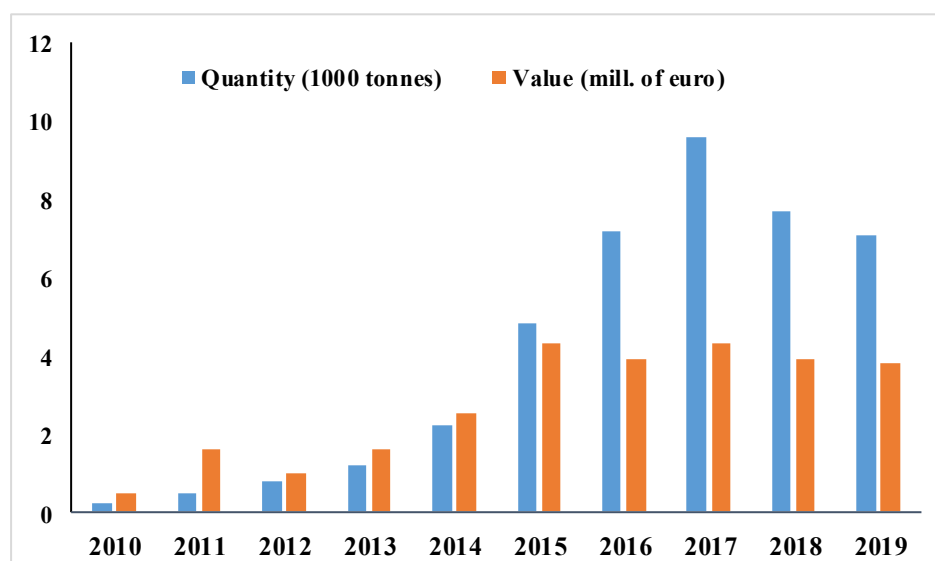


Figure 1. Total landings in Romania

Source Authors, by using EUMOFA (2022),

According to Eurostat data, cited by the European Market Observatory for Fisheries and Aquaculture Products EUMOFA (2022), in 2019 Romania still had 159 vessels, which had a total capacity of 1,582 GT and a power of 6,547 KW. The Romanian fishing fleet is small, about 84% of the Romanian fishing vessels having a length of up to 11 m, 14% having 12-23 m and only 2% of them 24-39 m.

More than half of the fishing system is made with the help of gill nets and entangling nets, trawls representing about 25% of the total. In our country there are only 2 ports for fishing vessels, landings in Romania only include fresh products destined for human consumption. Total landings in Romanian fishing ports are presented in figure 1 (values were deflated by using the GDP deflator/base=2015).

The quantities of fish obtained in national aquaculture in the period 2011-2020 were between 8 and 13 thousand tons (figure 2).

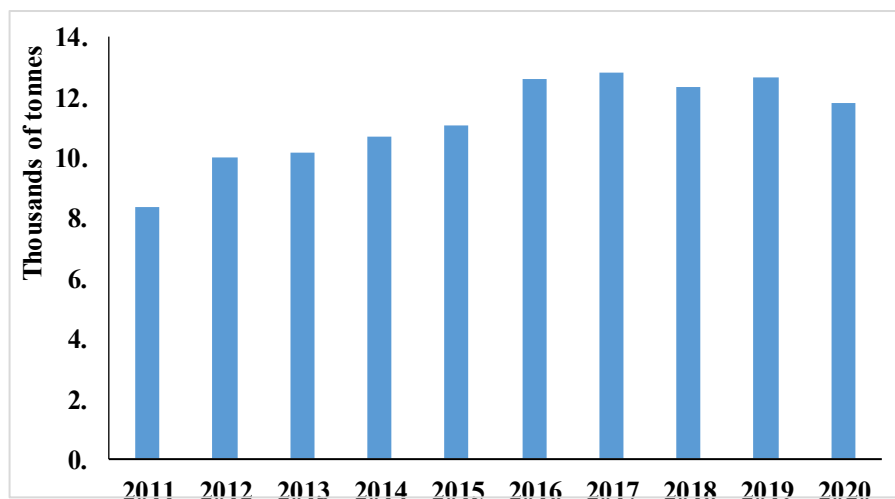


Figure 2. Production from aquaculture excluding hatcheries and nurseries in Romania (tonnes live weight)

Source Authors, by using Eurostat (2022).

According to Eurostat data (2022), aquaculture activity in Romania is limited to freshwater farming systems. The main production methods used at national level are based on raising fish in ponds (79%) with the remaining 21% being obtained in tanks and raceways.

There are only 11 producer associations recognized in Romania, intended for the collective management of the activities of the associated members, involved in implementing the objectives of the common European policy in the field of fisheries and of the common organization of markets. Only two associations operate in the field of fish farming. According to Eurostat data, 31 companies were active in the fish processing industry in Romania, with a total turnover of 106.3 million euros. About 1,300 people were employed in the sector in 2019.

Overall, the fishing sector registered an added value of 11.5 million euros, which represented about 1% of the added value of the total production of food products. The main fishery products sold on the national market in 2020 were "Prepared or preserved crustaceans, molluscs and other aquatic invertebrates (excl. chilled, frozen, dried, salted or in brine, crustaceans, in shell, cooked by steaming or boiling) (excl. prepared meals and dishes)" and "Prepared or preserved fish (excl. whole or in pieces and prepared meals and dishes)", "Frozen whole salt water fish" (Eurostat, 2022).

Romanian trade in fishery products is dominated by imports, mainly from European countries (figure 3).

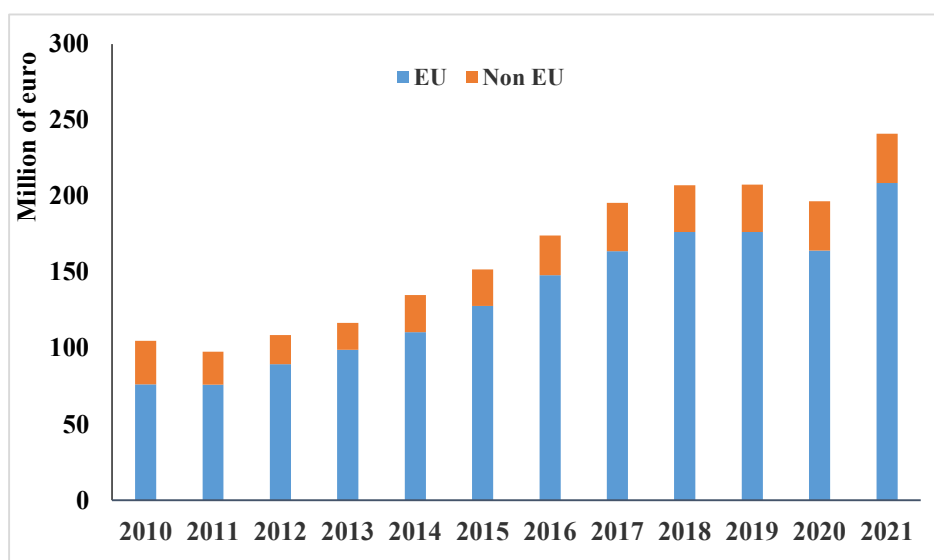


Figure 3. Imports of fishery products in Romania

Source: Authors, by using National Institute of Statistics NIS (2022)

In 2021, Romania imported fish and crustaceans in a total value of almost 250 million euros, over 80% of imports being made from European countries. With an annual fish consumption in Romania estimated at around 140,000 tons per year, which corresponds to an amount of 8.5 kilograms per capita per year, more than 120 tons of fish were imported in 2021, covering almost 90% of internal consumption. Frozen fish is mainly imported from Spain, Poland and Canada. The Romanian export of fish practically does not exist, small quantities of fish being traded abroad - about 866 tons, worth 2 million euros, the main destination being the Republic of Moldova - 255 tons. In general, sardines, mackerel, anchovies and hake are delivered (Profit.ro, 2022). Romania's trade balance in the international trade with fish and crustaceans is strongly unbalanced, the domestic market being strongly dependent on imports (figure 4).

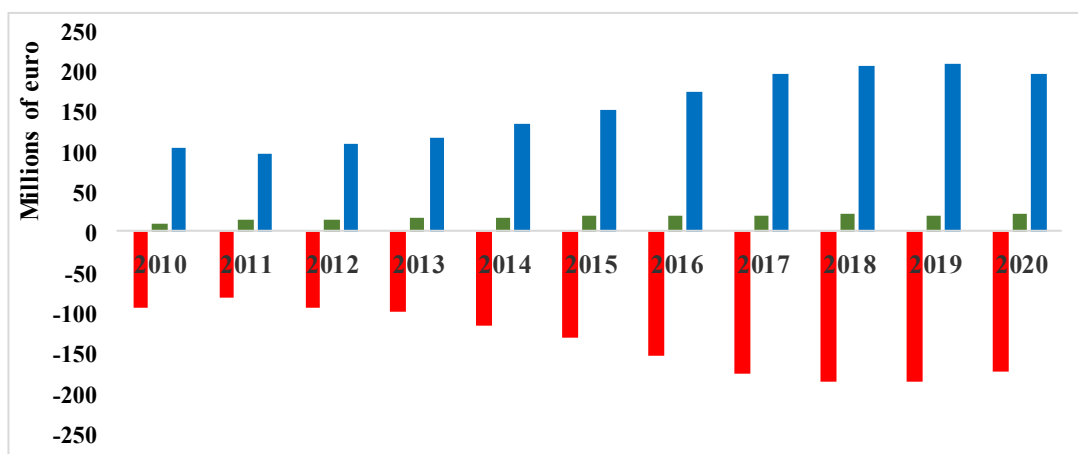


Figure 4. Romania's trade balance in fish and crustacean transactions

Source: Authors, by using National Institute of Statistics NIS (2022)

According to the Eurobarometer survey (2021), cited by EUMOFA (2022), the main sources of purchase of fishery products in Romania were supermarkets/grocery stores, followed by specialized stores (figure 5). With the exception of the preference to purchase fish directly from fish farms or from fishermen, Romania registers trends close to the European average.

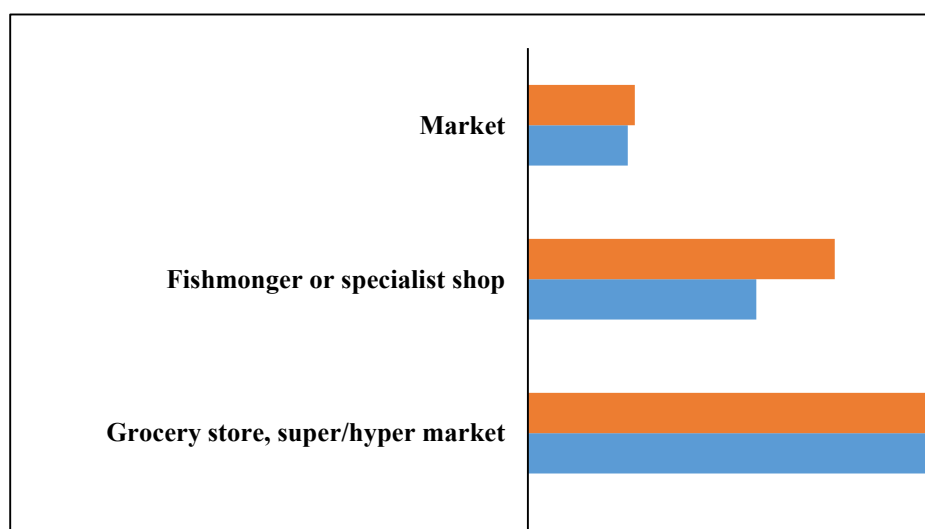


Figure 5. Consumer preferences on purchasing channels

Source Authors, by using EUMOFA (2022),

Consumers of fishery/aquaculture products who purchase these products at least once a month mainly belong to the 40-54 and 25-39 age groups. As in other European countries, the young population in Romania, aged between 15 and 24, consumes less fish. In this category, regular consumers represent about 59% of the total, below the European average (67%). Romanians mainly consume fresh and frozen products. The share of the population that consumes bulk fish in Romania (63%) is below the European average (68%) (EUMOFA, 2022). The average annual consumption of fishery products per capita has registered an increasing trend in recent years, reaching around 8.5 kg in 2021. The evolution of the average annual consumption of fish and fishery products in fresh fish equivalent, expressed in kg/capita, is shown in the figure 6.

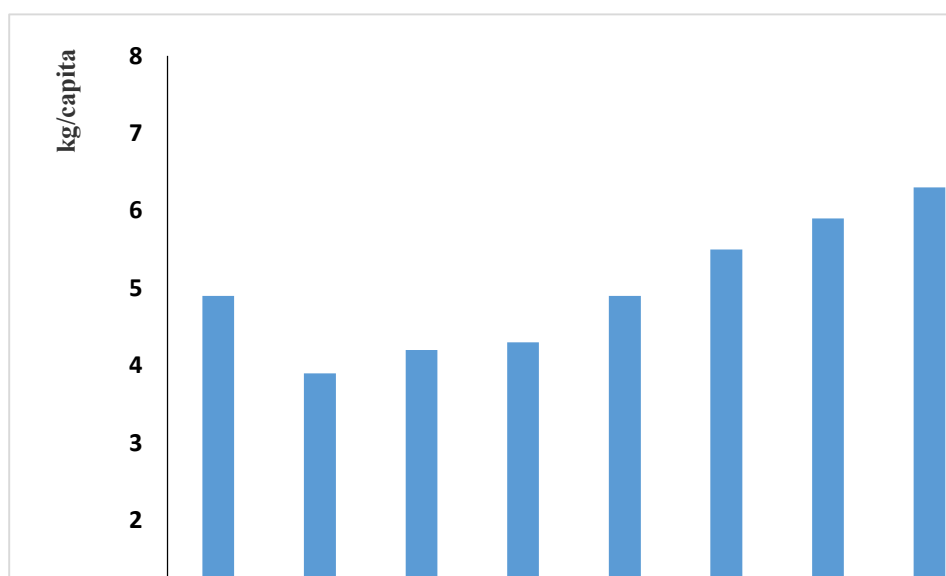


Figure 6. Fish and fishery products consumption in Romania (in fresh fish equivalent)

Source: Authors, by using National Institute of Statistics NIS (2022)

According to the Profit.ro study (2022), mackerel (19,512 tons), hake (6,119 tons), herrings (4,577 tons), frozen salmonids (2,282 tons), sardines (2,011 tons), trout (1,237 tons), anchovy (447 tons), black cod (473 tons), but also other species such as red salmon, Nile perch, albacore tuna or turbot. Romania imports about 227 tons of frozen mussels annually, the main suppliers being Spain (97 tons) and Italy (55 tons).

5. Conclusions

The sustainable development of the fishing sector is a priority of the European policy, with important financial resources being allocated for the development of community production and the reduction of imports. With a significant reduction in the number of farms, the lack of a fishing fleet led to a significant decrease in domestic production and the dependence of the domestic market on imports. As an exporter, Romania is an insignificant player on the European market. Although some progress has been registered, the average annual fish consumption per capita in Romania is far below the European average. Although in the

period 2007-2020 the Romanian fishing sector benefited from important European funds, there has not yet been a significant revival of the domestic market.

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