

## **Assessing fish and seafood consumption worldwide in the period 2012-2022**

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### **Abstract**

The global demand for fish and seafood has risen steadily in recent years, driven by increasing awareness of their health benefits. This study analyzes the variety of fish and seafood marketed in Romania, Europe, and globally, examining sources, market dynamics (2012–2022), consumer preferences, and the impact of sustainability on fishing practices. According to Eurostat, Romania's average fish consumption increased by 33.61%, from 5.37 kg/person (2012) to 7.15 kg/person (2022). The highest consumption rates were recorded in the North East (91%) and South East (90%) regions, while the lowest were in the West (84%) and North West (85%). In Europe, average consumption remained stable at around 17.2 kg/person, while globally, it saw a slight increase of 5.3%, from 13.98 kg/person (2012) to 14.72 kg/person (2022). The trend toward clean, nutritionally balanced diets is expected to continue shaping the seafood market in Romania and across Europe.

**Key words:** fish consumption, seafood consumption.

### **1. Introduction**

Fish marketed in compliance with food safety standards is a vital component of a balanced diet, offering essential nutrients that support overall health [1,2,3]. Regular consumption, especially of omega-3-rich fish, provides numerous benefits, including improved heart health, enhanced cognitive function, and reduced risks of chronic diseases [4,5,6]. Varieties like salmon and sardines are excellent sources of vitamins A and D, crucial for maintaining healthy eyesight [4]. Additionally, fish consumption helps lower LDL cholesterol and increase HDL cholesterol, promoting cardiovascular health [5,7].

Romanians consume nearly three times less fish than the EU average of 17 kg/capita/year, with significant variations across member states. Bulgaria and Hungary consume only 2.5–3 kg/capita/year, while Portugal leads with 76 kg/capita/year. Spain follows with 60 kg/capita/year, and Iceland, Europe's highest,

with around 90 kg/capita/year. Globally, Japan tops the list with over 130 kg/capita/year [8,9].

In Romania, per capita fish consumption dropped from 8 kg in 1989 to 2 kg in 1993, gradually rising to 4.5 kg in 2005 and 4.6 kg in 2006, before declining to 3.8 kg in 2007. Between 2020 and 2024, annual consumption fluctuated between 3 and 4.5 kg/capita, with over 80% reliant on imports. By 2023, imports accounted for 87% of consumption [10,11].

Seafood is valued not only for its taste but also for its nutritional richness, being high in vitamins, proteins, fatty acids, and other essential nutrients [4,12]. In Romania, seafood consumption has grown significantly over the past five years, driven by healthier lifestyle trends and interest in the Mediterranean diet [13,14]. By 2022, the market reached an estimated €60 million, with shrimp dominating 50% of sales, followed by clams (15%) and squid (7%) [15,16]. In early 2023, shrimp consumption rose by 15% year-on-

year, continuing the upward trend since 2020 [17,18].

## 2. Material and methods

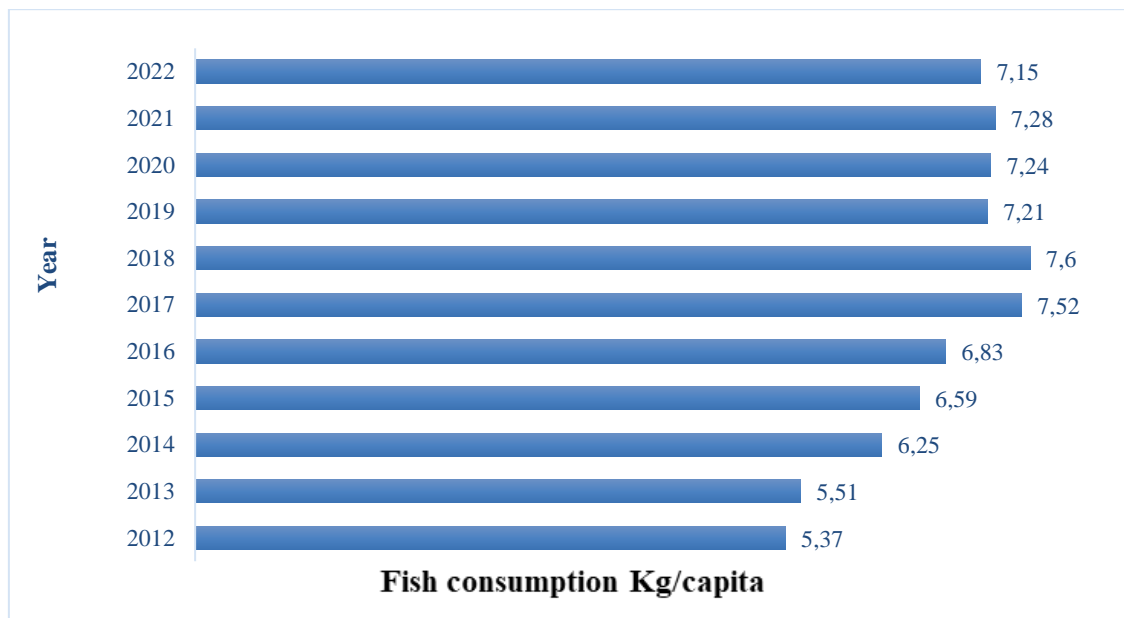
To conduct the study, 30 references were analyzed. A comprehensive literature review was performed using scientific databases such as PubMed, Google Scholar, Scopus, and Web of Science, focusing on studies published between 2012 and 2022. Additionally, data from the European Commission on the Common Fisheries Policy (CFP), consumption statistics from Statista, the European Market Observatory for Fisheries and Aquaculture Products, and FAOSTAT were consulted. The most representative data were selected,

plotted, and interpreted for analysis.

## 3. Results and Discussion

### *Fish consumption in Romania*

Currently, Romania's average fish consumption is 7 kg/capita/year, down from 10 kg/capita/year before 1989 [13]. At that time, fish was nearly the only source of animal protein available, explaining the higher consumption levels [18]. According to Pila and Stanciu (2008), fish is consumed by most of Romania's population, with the highest rates in the North-East (91%) and South-East (90%) regions, and the lowest in the West (84%) and North-West (85%) regions [13].



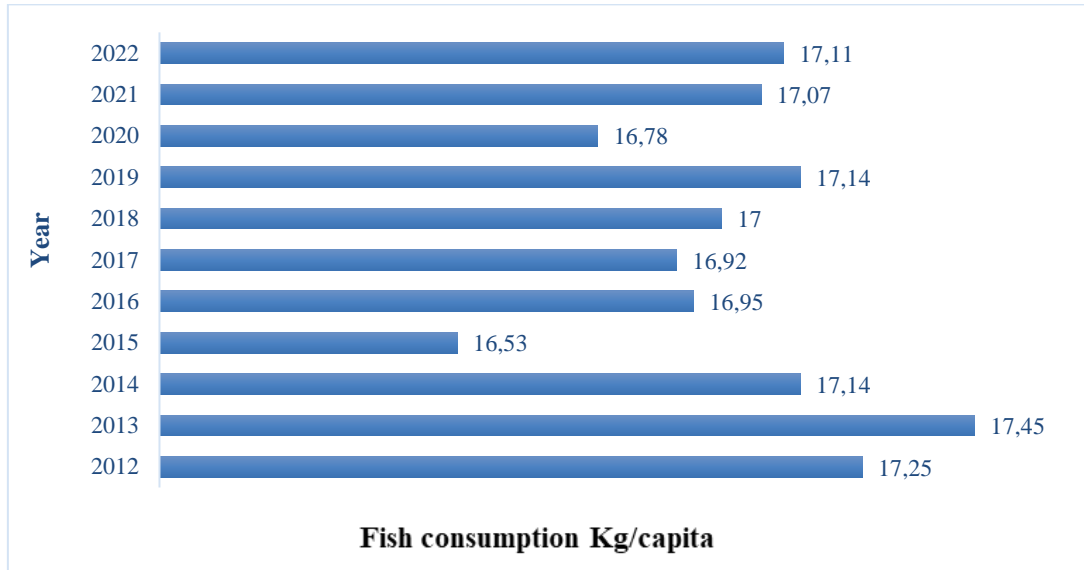
**Figure 1.** Evolution of fish consumption in Romania, period 2012-2022  
 Source: [https://ec.europa.eu/eurostat/databrowser/product/page/fish\\_ld\\_ro](https://ec.europa.eu/eurostat/databrowser/product/page/fish_ld_ro)

As shown in Figure 1, fish consumption in Romania rose by 33.1% in 2022 compared to 2012. Over the decade studied, consumption fluctuated, with the lowest level in 2012 (5.37 kg/capita/year) and the highest in 2022 (7.15 kg/capita/year), according to Eurostat. In the last six years, consumption stabilized. The largest increase (41.52%) occurred between 2012 and 2018. Petre and Drăghici (2021) reported similar trends, noting an average canned fish consumption of 0.67 kg/month/capita (~8 kg/year) from 2008 to 2019, with a 1.99% annual growth [19]. Popescu *et al.* (2022) found a 38.5% increase from 2014 (4.9 kg) to 2020 (6.3 kg) [20]. These trends reflect Romanians' growing preference

for fish, largely due to its high biological protein value [20].

### *Fish consumption in Europa*

Europeans are among the world's largest consumers of fish and seafood, with about two-thirds of supply imported from outside Europe and the rest from domestic production [21]. From 2012 to the present, average consumption has remained stable, ranging between 17.11 and 17.25 kg/capita/year (FAO, 2022) [22,23,24]. Approximately 75% of consumption comes from wild fisheries, though distribution varies significantly between industrialized and developing countries in Europe [25,26].



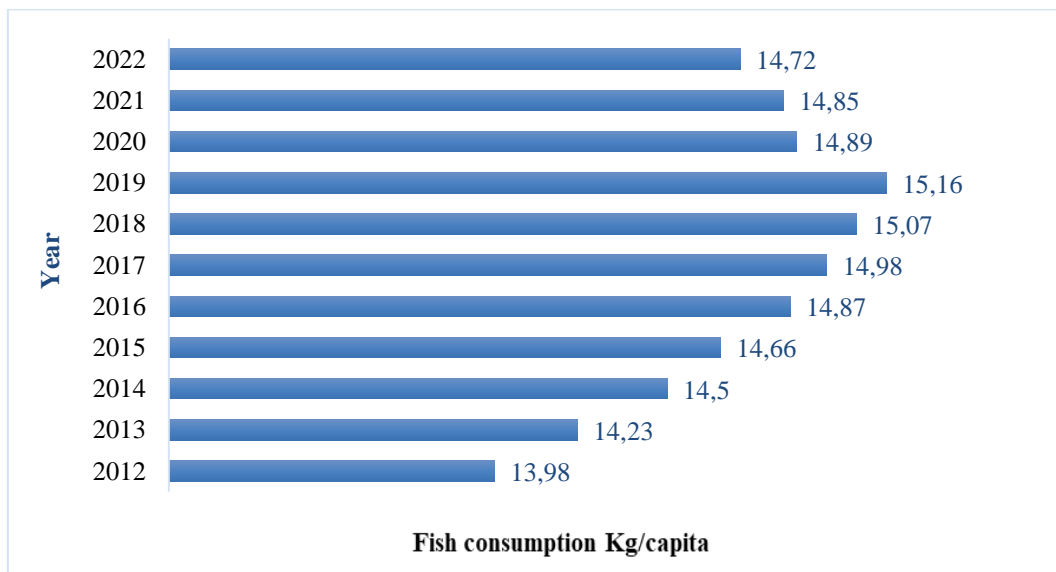
**Figure 2.** The dynamic of fish consumption in Europe, period 2012-2022  
 Source: [https://ec.europa.eu/eurostat/databrowser/view/fish\\_aq2a/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/fish_aq2a/default/table?lang=en)

The data (Figure 2) indicate relative stability in consumption, with minor annual variations. The lowest consumption was recorded in 2015 and 2020, averaging 16.65 kg/capita. In 2022, consumption decreased by 1% compared to 2012 and by 2% compared to 2013, marking the lowest level in the studied period. The highest consumption occurred in 2013 (17.45 kg/capita), followed by 2012 (17.25 kg/capita) and 2014 and 2019 (17.14 kg/capita). Shivarov (2023) reported a higher figure of 23.71 kg/capita in 2021, including seafood [21], suggesting consistent consumption habits over the decade. Szymańska (2021) noted an average of 19.8

kg/capita for fish and seafood in Europe from 2010 to 2019. [27]

*Global fish consumption*

Global fish consumption has risen over the past decade, driven by population growth from 3 billion to 7.6 billion. If aquaculture production continues to grow at its current rate, global fish consumption is projected to nearly double by mid-century [27]. In developed countries, apparent fish consumption is 26.4 kg, 22% above the global average (20.5 kg), while in developing countries, it is significantly lower at 19.4 kg (FAO, 2022) [24].



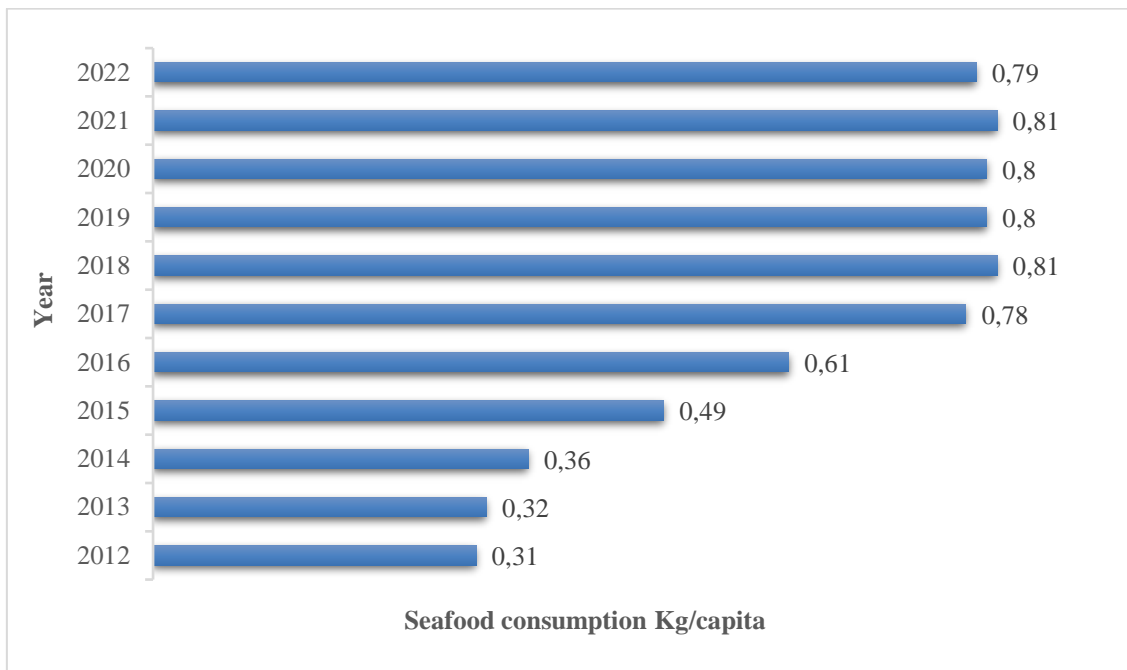
**Figure 3.** The dynamic of global fish consumption in the period 2012-2022  
 Source: <https://www.fao.org/faostat/en>

As shown in Figure 3, global fish consumption increased by 5.3% in 2022 compared to 2012. The highest consumption was recorded in 2019 (15.16 kg/capita), while the lowest was in 2012 (13.98 kg/capita). Consumption rose gradually from 2013 to 2019 but declined by 3% in 2022 compared to the previous seven years. Issifu *et al.* (2022) reported a global average of 18.7 kg/capita/year from 2017 to 2022, ranging from 0.02 kg/capita/year in poor countries to 191.8 kg/capita/year in developed countries [27].

According to the FAO (2022), global per capita fish and seafood consumption has doubled over the past 60 years, from 9.9 kg in the 1960s to 20.2 kg in 2020, and is projected to reach 21.2 kg by 2032 [24].

*Seafood consumption in Romania*

The culture of consuming marine fish and seafood in Romania remains underdeveloped. Previous studies indicate that, despite growing consumer interest, resistance to such products persists [28].



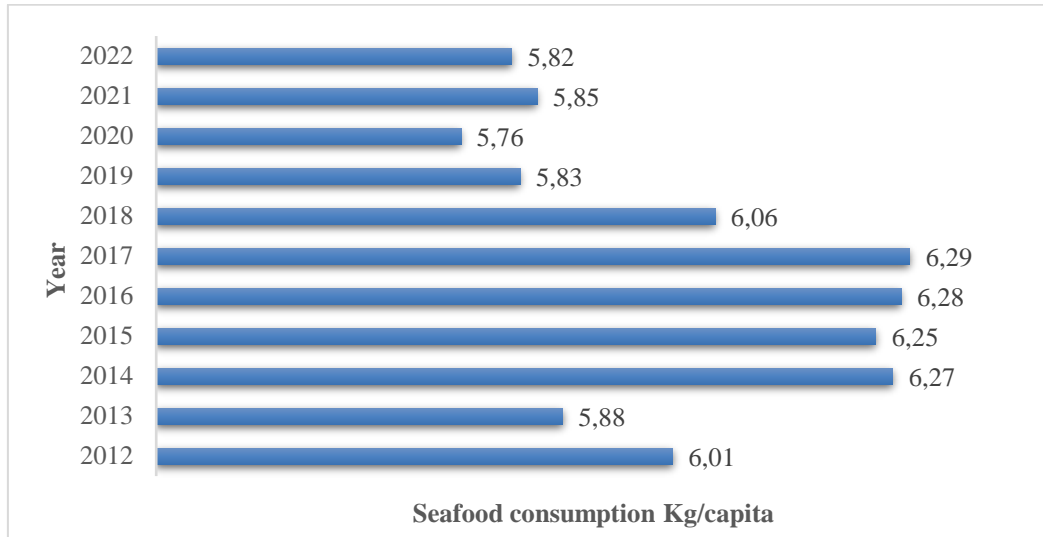
**Figura 4.** Evolution of seafood consumption in Romania, period 2012-2022  
 Source: [https://ec.europa.eu/eurostat/databrowser/product/page/fish\\_ld\\_ro](https://ec.europa.eu/eurostat/databrowser/product/page/fish_ld_ro)

Figure 4 shows that seafood consumption in Romania (kg/capita) increased 2.5 times in 2022 compared to 2012. The highest consumption occurred between 2018 and 2021, averaging 2.6 times higher than in 2012. From 2012 to 2016, consumption rose progressively, from 3% in the first two years to 24.5% in 2016 compared to 2012. In 2022, consumption

slightly declined by 3.8% compared to the 2018–2021 period.

*Seafood consumption in Europe*

The European Union is the world’s largest seafood market, with an average annual consumption of 24.4 kg of fish and seafood per person, including 6 kg/capita from seafood [29].



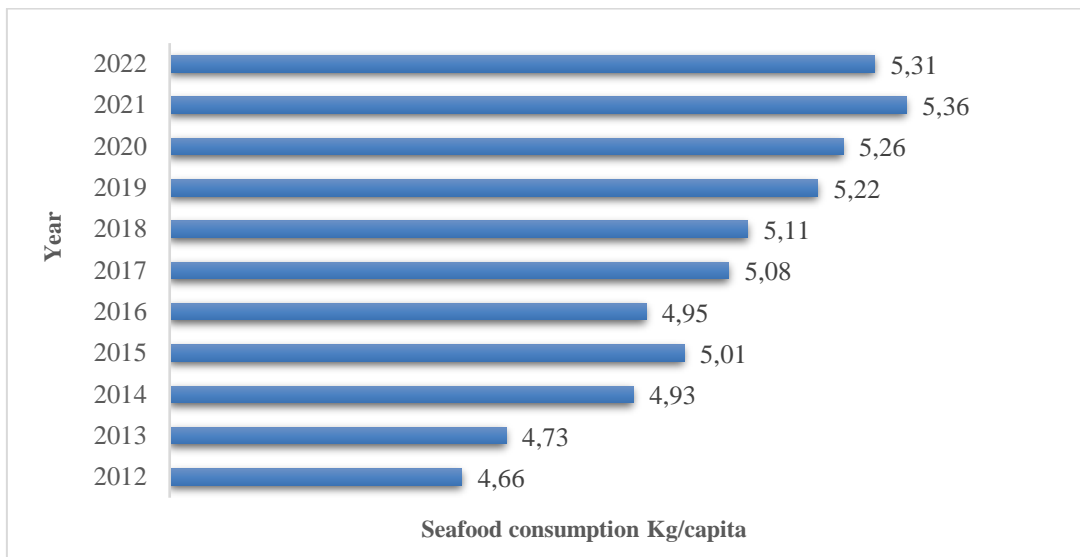
**Figure 5.** The dynamic of seafood consumption in Europe, period 2012-2022  
 Source: [https://ec.europa.eu/eurostat/databrowser/view/fish\\_aq2a/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/fish_aq2a/default/table?lang=en)

Figure 5 shows that European seafood consumption fluctuated between 2012 and 2022. The highest consumption occurred from 2014 to 2017, averaging 6.27 kg/capita/year, but declined by 9.2% by 2020, reaching the lowest level (5.76 kg/capita/year) in the studied period. Over the next two years, consumption rose by an

average of 1.4% compared to 2020.

*Global fish consumption*

Seafood protein provides essential nutrition, particularly in countries with low overall protein intake. The globalization of the seafood market has increased its accessibility worldwide, especially in developed nations. [30].



**Figure 6.** The dynamic of global seafood consumption in period 2012-2022  
 Source: <https://www.fao.org/faostat/en>

Figure 6 shows a steady rise in global seafood consumption from 2012 to 2022, increasing by about 2% annually, except in 2016 and 2022, which saw slight declines of 1.2% and 1%, respectively. The highest consumption was recorded in 2021 (5.36 kg/capita), followed by 2022 (5.31 kg/capita), while the lowest was in 2012 (4.66 kg/capita).

**4. Conclusions**

The data analyzed suggest a global upward trend in fish and seafood demand, reflecting their growing importance as a food source. In Romania, seafood consumption is also rising, indicating increased dietary interest, though it remains three times lower than in most EU countries. While European consumption has

slightly declined in recent years, it remains among the highest globally. Worldwide, fish and seafood consumption continues to grow, forming a staple in many developed countries. Their high nutrient and protein content makes them valuable raw materials for food processing, driving current interest among producers and researchers in developing innovative seafood products.

### Compliance with Ethics Requirements

Author declares that he respects the journal's ethics requirements. Author declares no conflict of interest.

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