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OVERVIEW OF RECENT TRENDS IN THE FISHERIES AND AQUACULTURE SECTOR

Executive Summary

This document provides a brief outline of recent and expected trends in the global fisheries and aquaculture sector, focusing on major issues and developments of relevance to international trade that have taken place since the 17th Session of the COFI Sub-Committee on Fish Trade.

Suggested action by the Sub-Committee

- Note the recent changes that have occurred in the fisheries and aquaculture sector;
- Share information and relevant national experiences on recent and expected developments affecting the fisheries and aquaculture sector, in particular those related to trade;
- Provide guidance for future FAO work in international trade in fisheries and aquaculture products, particularly in enabling developing countries and small-scale operators to participate more effectively.

INTRODUCTION

1. The contribution of the fisheries and aquaculture sector to food security and livelihoods is significant, providing millions with food, nutrition, income and employment, while supporting economic development through harvesting, processing and marketing. A number of countries, including many developing countries and small island developing states (SIDS), are dependent on the sector, which can be particularly crucial for the population of numerous coastal, riverine, insular and inland regions.
2. Trade plays a major role in the fisheries and aquaculture sector, which operates in an increasingly globalized environment. Aquatic products can be produced in one country, processed in a second and consumed in a third. Furthermore, fisheries and aquaculture products are among the most internationally traded food commodities.
3. After decades of continuous expansion, the fisheries and aquaculture sector has been impacted by the consequences of the COVID-19 pandemic, with differing effects in relation to individual countries and products. The efforts to mitigate the spread of COVID-19 have brought about a decline in demand for aquatic foods, and disruptions in production, supply chains and markets.
4. The greatest impact from the pandemic has often fallen on those value chains which are dominated by small and medium enterprises (SMEs) as they rely on an array of external services and inputs, and have limited stocking and processing capacity. Large-scale supply chains, in contrast, have generally been less affected, as they are more able to control input and output delivery and sustain the increased cost of inputs, storage and transportation.¹ In developing countries with large informal sectors, small-scale and artisanal workers and communities were particularly impacted. Many of these workers do not belong to producer organisations that represent their combined interests, making it challenging to access government support where it is available.

OVERVIEW OF THE FISHERY AND AQUACULTURE SECTOR

Employment

5. Many millions of people worldwide find a source of income and livelihood in the fisheries and aquaculture sector. The full range of activities required to deliver fisheries and aquaculture products from production to final consumers are complex, and technologies employed to manage these value chains vary from artisanal to highly industrial. In 2019, more than 61 million people were employed in the primary sector, on a full-time, part-time or occasional basis, with around 39 million people engaged in capture fisheries and 22 million in aquaculture. The highest number of primary sector workers were in Asia (85 percent), followed by Africa (9 percent), the Americas (4 percent), Europe and Oceania (1 percent each).² Most of those who are directly employed in the sector are artisanal and small-scale fishers and fish farmers.
6. Globally, about 200 million people are directly and indirectly employed throughout the fisheries and aquaculture value chain. These activities support the livelihoods of many more millions of people who are often located in places at exceptionally high risk of extreme events. Women play an important role in the fisheries and aquaculture workforce, representing about 15 percent of those employed in the primary sector and around half of those employed in the secondary sector in 2019.

¹ IFPRI. 2021. Smallholder and agrifood SME resilience to shocks: Lessons from COVID-19 for the UN Food System Summit. In: IFPRI Blog [online]. ifpri.org/blog/smallholder-and-agrifood-sme-resilience-shocks-lessons-covid-19-un-food-system-summit

² doi.org/10.4060/cb7874t

7. The COVID-19 pandemic has affected work and income in general, with more significant declines in women's employment,³ higher care work burden and lower food security. Indeed, given the multiple gender inequalities characteristic of the fisheries and aquaculture system, women's wellbeing and economic status have been further aggravated by COVID-19, with ripple effects ultimately inhibiting the achievement of gender equality and food security worldwide.

8. Nonetheless, there have been several instances where women's groups have been able to adapt and develop innovative solutions, such as pivoting to e-commerce, online marketing and home delivery services.⁴ Women and women's cooperatives were also key agents in adaptation strategies, such as awareness-raising for hygiene and sanitary measures at landing sites and engagement with the government to ensure decent working conditions and fair distribution of benefits.⁵

Production

9. Having reached a record of around 179 million tonnes in 2018, world fisheries and aquaculture production⁶ declined marginally in 2019 (-1 percent compared to 2018), before then growing a mere 0.2 percent in 2020, reaching 178 million tonnes (Table 1). This stagnation is mainly linked to a slight decline in capture fisheries, which peaked at over 96 million tonnes in 2018. Capture fisheries production decreased by 4.5 percent in 2019, and by a further 2.1 percent in 2020. In 2019 the decline was caused by fluctuating catches of pelagic species, particularly anchoveta, while in 2020 the decrease was mainly due to the related impacts of COVID-19.

10. Various lockdowns in several countries due to the pandemic led to a drop in demand, which in some cases reduced the prices of fisheries and aquaculture products. This implied many fishing fleets stopped operating or reduced their activities, as their work became unprofitable during different periods of the last two years. In some cases, quotas were not filled due to low demand and/or lack of storage for perishable products such as aquatic products. Fisheries that rely on export markets were more impacted than those serving domestic markets. Sanitary measures (physical distance between crew members at sea, face masks, etc.), and lack of necessary equipment (e.g. masks and gloves) made in some cases fishing difficult with the consequence of ceasing activities for a certain period. Limited supplies of inputs (e.g. ice, gear, bait) were another constraint on the fishing industry, with closed suppliers or inability to provide inputs on a credit basis. Globally, the impacts on catches have varied among countries and species. Many countries have experienced sharp drops in production during the first weeks of the crisis, followed by improvements as the sector adapted. In the last three decades, aquaculture has been the main driver of the increase in the total production of aquatic species, with average growth of 4.5 percent per year between 2008 and 2018, followed by a decline of 2.7 percent per year between 2019 and 2020. Total aquaculture production of aquatic animals reached its peak at 88 million tonnes in 2020, despite the related impacts of COVID-19. In general, COVID related effects were particularly relevant for the production of species directed to export markets. Aquaculture production for domestic markets saw reduced availability of necessary equipment and inputs (including feed, fingerlings, and ice), while disruption to transportation and marketing, and sanitary measure also left their mark.

³ FAO & Worldfish. 2021. Aquatic food systems under COVID-19. Rome.

[fao.org/publications/card/en/c/CB5398EN/](https://www.fao.org/publications/card/en/c/CB5398EN/); and [fao.org/3/cb7868en/cb7868en.pdf](https://www.fao.org/3/cb7868en/cb7868en.pdf)

⁴ FAO & INFOFISH. (forthcoming). Resilience and seizing opportunities: Small-scale fisheries and aquaculture businesses that thrived during the COVID-19 pandemic in South and Southeast Asia. Bangkok, FAO.

⁵ [fao.org/3/cb1550en/CB1550EN.pdf](https://www.fao.org/3/cb1550en/CB1550EN.pdf)

⁶ Unless otherwise specified, the statistics on fisheries and aquaculture production, trade and consumption quoted in this document exclude whales, seals, crocodiles, caimans, other aquatic mammals and aquatic plants. Data reported are the ones available at the time of the preparation of the document (March 2021), with some of the quoted statistics representing preliminary estimates of data that will be disseminated by FAO during 2022. The source of 2030 data is the OECD-FAO Agricultural Outlook 2021-2030 publication (OECD/FAO (2021), OECD-FAO Agricultural Outlook 2021-2030, OECD Publishing, Paris, doi.org/10.1787/19428846-en) and in particular its fish chapter available online at [fao.org/3/cb5332en/Fish.pdf](https://www.fao.org/3/cb5332en/Fish.pdf)

Table 1. World fisheries and aquaculture production

	2015	2016	2017	2018	2019	2020
Excluding aquatic plants						
Million tonnes (live weight)						
Aquaculture	72.9	76.5	79.6	82.4	85.2	87.5
Capture fisheries	91.6	89.5	93.4	96.5	92.2	90.3
Total	164.4	166.0	172.9	178.9	177.4	177.8
<i>Share in total quantity (percentage)</i>						
<i>Aquaculture</i>	<i>44</i>	<i>46</i>	<i>46</i>	<i>46</i>	<i>48</i>	<i>49</i>
<i>Capture fisheries</i>	<i>56</i>	<i>54</i>	<i>54</i>	<i>54</i>	<i>52</i>	<i>51</i>
Total	100	100	100	100	100	100
Including aquatic plants						
Million tonnes (live weight)						
Aquaculture	104.0	108.2	112.2	115.9	119.8	122.6
Capture fisheries	92.6	90.6	94.5	97.4	93.3	91.4
Total	196.6	198.8	206.6	213.3	213.1	214.0
<i>Share in total quantity (percentage)</i>						
<i>Aquaculture</i>	<i>53</i>	<i>54</i>	<i>54</i>	<i>54</i>	<i>56</i>	<i>57</i>
<i>Capture fisheries</i>	<i>47</i>	<i>46</i>	<i>46</i>	<i>46</i>	<i>44</i>	<i>43</i>
Total	100	100	100	100	100	100

Totals might not match due to rounding.

Source: FAO. 2022. Fishery and Aquaculture Statistics. Global production by production source 1950-2020 (FishstatJ). In: FAO Fisheries and Aquaculture Division [online]. Rome. Updated 2022. [fao.org/fishery/en/topic/166235](https://www.fao.org/fishery/en/topic/166235)

11. Having grown more than capture fisheries during the last two years implied that the share of aquaculture in total fisheries and aquaculture production increased from 46 percent in 2018 to about 49 percent in 2020. If aquatic plants are included, aquaculture has already overtaken capture fisheries as the primary source of fish production since 2013, and its share in total production reached 57 percent in 2020. Production of seaweed and other aquatic plants reached 36 million tonnes in 2020, of which 97 percent originated from aquaculture.

12. Despite the increasing role of aquaculture in total supply, the capture sector remains dominant for a number of species and vital for domestic and international food security. Since the mid-1990s, overall capture fisheries production was around 89–93 million tonnes, with major variations mainly determined by fluctuations of anchoveta catches in South America and other pelagic species. In addition, thanks to improved management of selected resources, some stocks have shown a recovery, with an increase in their catches.

13. Yet, despite significant improvements in some stocks and overall catch stability, there is a general decreasing trend in the proportion of marine fish stocks caught within biologically sustainable levels, especially in the least developed regions, from 90 percent in 1974 to 65.8 percent in 2017. In contrast, the percentage of stocks fished at biologically unsustainable levels increased from 10 percent in 1974 to 34.2 percent in 2017, with the largest increases in the late 1970s and the 1980s.⁷ At the same time, inland fisheries are severely affected by the growing demand for freshwater fish.

⁷ doi.org/10.4060/ca9229en

14. Asian countries are by far the predominant producers (Table 2). China is the leading producer, with a share of 35 percent of world fisheries and aquaculture production and 57 percent of world aquaculture production in 2020. In the same year, other major producers for total production were India, Indonesia, Viet Nam and Peru.

15. Preliminary estimates for 2021 point to a slight increase in both capture fisheries and aquaculture production, while reduced or negative supply growth has been forecast for many of the major species in 2022, particularly whitefish. Declines in total supply are projected for important wild-caught whitefish species such as Alaska pollock and cod, while harvests of farmed tilapia and pangasius lag behind demand growth.

16. Yet, overall, according to the results of the FAO fish model released in July 2021, the next decade is expected to be a positive one for the fisheries and aquaculture sector.⁸ Major growth will come from aquaculture, which is expected to reach over 103 million tonnes by 2030, excluding aquatic plants. With the exceptions of the years affected by El Niño, global capture fisheries is expected to slightly increase during the next decade, thanks to progress in rebuilding certain fishery stocks, the implementation of more robust management regimes by some countries and optimised utilization of fishery production through reduced discards and losses, which will counterbalance the pressure on resources that are not effectively managed.

Table 2. Relative shares in the fishery and aquaculture sector by geographical and economic regions in 2020

	Total production	Aquaculture	Capture fisheries	Fish Exports	Fish Imports
	Share in total quantity (percentage)			Share in total value (percentage)	
World	100.0	100.0	100.0	100.0	100.0
Asia	70.3	88.4	52.7	36.9	34.7
Africa	6.8	2.6	10.9	4.6	3.4
Americas	12.3	5.0	19.4	19.9	19.5
Europe	9.6	3.7	15.3	36.7	41.2
Oceania	1.0	0.3	1.7	1.9	1.2

1030 tonnes of Others nei, for capture fisheries production not included in any of the aggregates.

Source: FAO. 2022. Fishery and Aquaculture Statistics. Global production by production source 1950-2020 (FishstatJ). In: FAO Fisheries and Aquaculture Division [online]. Rome. Updated 2022.

fao.org/fishery/statistics/software/fishstatj/en

Consumption

17. A growing share of fisheries and aquaculture production is directed to human consumption. Of the 178 million tonnes produced in 2020, about 89 percent (or 157 million tonnes) were used for direct human consumption, with the rest destined for non-food uses, including reduction into fishmeal and fish oil. About 44 percent of the aquatic production destined for human consumption was in live and fresh form.

⁸ According to the results of the FAO fish model, included in the OECD-FAO Agricultural Outlook 2021–2030 OECD/FAO (2021), OECD-FAO Agricultural Outlook 2021–2030, OECD Publishing, Paris, doi.org/10.1787/19428846-en

18. Fisheries and aquaculture products play a crucial role in nutrition and global food security. They represent an important source of macronutrients and micronutrients such as vitamins and minerals (zinc, iron, iodine and selenium) and omega-3 fatty acids. Even small quantities of aquatic food can have a significant positive nutritional impact on plant-based diets, by also helping an improved uptake of various nutrients from plants when consumed with aquatic food, and this is the case in many low-income food-deficit countries (LIFDCs) and least-developed countries (LDCs). For example, of the 31 countries where fish contribute 30 percent or more of the total animal protein supply, 17 are LIFDCs. Micro- and macronutrients provided by aquatic food are essential in the diet of some densely populated countries, where total protein intake level is low and nutritional issues are faced and are very important in the diets of many other countries, particularly SIDS. At the global level, fish accounts for about 17 percent of the world population's intake of animal proteins and provides approximately 3.3 billion people with almost 20 percent of their average per capita intake of animal proteins and 5.6 billion people with 10 percent of such proteins.

19. World apparent per capita aquatic food consumption has significantly grown during the last few decades going from 9 kg in 1960 to a peak of 20.5 kg in 2018. This expansion in demand has been driven by population growth, rising incomes and urbanization and is facilitated by the substantial development of fisheries and aquaculture production and more efficient distribution channels. International trade has also played an important role in broadening fish consumption by providing wider choices to consumers. A sizeable and growing share of aquatic food consumed in North America, Europe and Africa consists of imports, owing to steady demand for non-locally produced species and a static or declining domestic fish production. Over the next decade, this dependency on imports of fisheries and aquaculture products to satisfy domestic demand is expected to grow further. In 2020 per capita fish consumption slightly declined to 20.2 kg due to the contraction of the demand experienced during the year. Preliminary estimates for 2021 point to a slight increase.

20. Despite the overall increase in aquatic food availability to most consumers, marked differences exist between and within countries and regions in terms of the quantity and variety consumed at the per capita level impacting the subsequent contribution to nutritional intake. Asia consumes more than two-thirds of the total food fish supply, while Oceania and Africa have the lowest share. In per capita terms, the highest fish consumption, over 50 kg, is found in several SIDS, particularly in Oceania, while the lowest levels, just above 2 kg, are in Central Asia and some landlocked countries. Although annual per capita aquatic food consumption has grown steadily in developing regions and in LIFDCs, it is still lower than in more developed regions. Availability and disposable income are not the only factors boosting aquatic food consumption. It is evident that socio-economic and cultural factors also strongly influence fish consumption among countries and within countries.

21. The COVID-19 pandemic led to a decisive shift in consumer patterns. The persistence of habits and innovations developed during the lockdowns, such as a renewed interest in home cooking, a general pivot towards retail, the proliferation of home delivery services, a strong focus on digital marketing and an increase in e-commerce sales. These new market features have not faded away as we begin to emerge from the worst of the pandemic. In fact, they look to have made a permanent contribution to the dynamics and opportunities for transforming the global fisheries and aquaculture sector. However, some products are unlikely to see the levels of demand they experienced during the pandemic maintained as normality returns, such as canned tuna, that had an impressive increase in consumption during periods of lockdown.

22. In the next decade, per capita consumption of fisheries and aquaculture products is expected to reach 21.2 kg in 2030, with a major expansion in demand expected to occur in developing countries. A growing share of aquatic products available for human consumption is expected to originate from aquaculture production. Since 2016, aquaculture has become the main source of fisheries and aquaculture products for human consumption and this share is anticipated to grow in the next few decades.

23. As per results included in the OECD-FAO Agricultural Outlook 2021-2030, consumption is expected to increase in all continents, except Africa. The static per capita fish consumption for Africa as a whole and the decreasing trend in Sub-Saharan Africa is due to the population growing faster than supply. This is a concern for food security, considering the crucial role that aquatic food plays in providing proteins and micronutrients in many African countries. Compared with the world average, Africa currently has a lower per capita fish consumption (about 10 kg), but its share of fish to total animal protein intake is higher. Proteins from aquatic food represent about 20 percent of total animal protein intake in Africa, and this can be higher than 50 percent in selected African countries, particularly in West Africa.

Trade

24. A significant share of total fisheries and aquaculture production (oscillating at about 36-38 percent live-weight equivalent in the last few years) is exported, reflecting the sector's degree of openness and integration into international trade. World trade of fisheries and aquaculture products has significantly increased during the last decades peaking at USD 165 billion in 2018. From 1976 to 2018, trade has increased at an annual rate of 6.7 percent in nominal terms and 4.1 percent in real terms. In 2019 trade of fisheries and aquaculture products declined by 2 percent, linked to the decrease in production and a contraction of demand in some key markets. Due to the related impacts of COVID-19, trade of fisheries and aquaculture products declined by about 8 percent between 2019 and 2020. However, this decline in fisheries and aquaculture trade is not an isolated phenomenon, as similar patterns were observed for other agriculture products and global merchandise trade.

25. Preliminary figures for 2021 indicate a growth of 17 percent compared to 2020, up to a new high of about USD 175 billion. Projections up to 2030 suggest that fisheries and aquaculture products will continue to be highly traded, although growth may be slower than in the previous decade. These general trends are caused by a variety of factors, including increased trade tensions (with consequences on higher tariffs being introduced by some major trading partners), weaker economic growth, and policy uncertainty in some countries, leading to weak demand growth.

26. For many less advanced economies, trade in fisheries and aquaculture products represents a significant source of foreign currency earnings and the sector's important role in income generation, employment, food security and nutrition. These countries have increased their imports of aquatic products to supply their processing sectors for re-export and to meet demand from rising domestic consumption.

27. In 2020, in addition to still being the leading producer, China had confirmed its key role as the main exporter of fisheries and aquaculture products at USD 18 billion despite a contraction of 8 percent compared to 2019. In addition, it remained the second largest importer at USD 15 billion, notwithstanding a 17 percent drop of its imports of aquatic products compared to 2019. In 2021, its trade of fisheries and aquaculture products recovered, reaching USD 21 billion for exports and USD 17 billion for imports. Overall, China's imports have increased in the last years, partly because of the outsourcing of processing from other countries, reflecting China's growing domestic consumption of species not produced locally.

28. In the last few years, Norway has remained the second-largest exporter (USD 11 billion in 2020 and USD 14 billion in 2021), followed by Viet Nam, the third-largest exporter since 2013. In 2020 and 2021, other major exporters were Chile, India and Thailand.

29. A share of the trade of fisheries and aquaculture products also consists of raw materials that are exported for processing in other countries where comparatively lower wages and production costs provide a competitive advantage, with the resulting processed products being subsequently exported. The outsourcing of processing industries is particularly relevant in some Central and East European countries and some Asian countries, where the processing industry contributes significantly to those economies through job creation and trade. The COVID-19 pandemic particularly impacted these trade flows.

30. More advanced economies still dominate imports of fisheries and aquaculture products, although with a declining share in recent years. The European Union, the United States of America and Japan are highly dependent on imports of aquatic products to satisfy domestic consumption. In 2020, their combined imports represented 58 percent by value of world imports of fisheries and aquaculture products, down from 64 percent in 2010 and 73 percent in 2000.

31. The European Union is by far the single largest market for imports of fisheries and aquaculture products, valued at USD 51 billion in 2020 (USD 27 billion if intra-European Union trade is excluded), down 4 percent from 2019. Preliminary data for 2021 show a major growth of about 14 percent. The United States of America is the top importing single country of fisheries and aquaculture products. Its imports reached USD 22 billion in 2020 (-7 percent compared to 2019) but jumped by 30 percent in 2021, reaching USD 28 billion. Japan, traditionally the largest single importer of aquatic products until the early 2010s, has seen a decline in its fisheries and aquaculture products imports by 13 percent in 2020 compared to 2019, reaching USD 13 billion, but then an increase by 6 percent in 2021.

32. Due to their dependence on imports, tariffs on fisheries and aquaculture products in more advanced economies are relatively low, albeit with few exceptions. Developing countries can supply aquatic products to markets in developed countries without prohibitive customs duties, despite market access issues related to non-tariff measures (NTMs). However, the issue of tariff escalation⁹ continues to be a severe problem for many fisheries and aquaculture products, particularly in accessing some developed country markets and expanding regional trade.

33. Recently, thanks to regional and bilateral trade agreements, the applied import tariff trend is declining, with some exceptions in LDCs. Many new regional trade agreements incorporated new conditionalities for preferential access for fisheries and aquaculture products dealing with sustainability, fisheries subsidies and other non-tariff issues. In contrast, many developing countries still apply relatively high tariffs for fisheries and aquaculture products that can reflect fiscal policies or protective measures.

34. Several other factors impact the performance of exporting countries to access regional and international markets, including problems linked to the internal infrastructure of some countries. Despite technical advances and innovations, many countries, especially those with less-developed economies, still lack adequate infrastructure and services, affecting the quality of fisheries and aquaculture products, contributing to food loss, food safety issues or marketing challenges.

35. The World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBTs) contains rules expressly aimed at preventing technical regulations and standards from becoming unnecessary barriers to trade. However, TBTs and non-tariff measures (NTMs) affect trade and create difficulties for traders by applying mandatory product standards, control of sanitary and phytosanitary measures, procedures for import licensing, rules of origin, conformity assessment and others. Trade can also be influenced by the specific ways customs classifications, valuations and clearance procedures are handled, including lengthy or duplicate procedures.

36. The entry into force of the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA) created the possibility of countries imposing trade restrictions at the port of entry to avoid the unloading of products originated from illegal, unreported and unregulated (IUU) fishing.

⁹ Tariff escalation occurs when higher import duties are imposed on semi-processed products than on raw materials. Usually, even higher tariffs apply to finished products. This practice protects domestic processing industries and discourages the development of processing activity in the countries where raw products originate from (definition based on WTO glossary).

37. The trade of fisheries and aquaculture products is becoming more sophisticated in terms of the information required for the products – traceability and sustainability certification are becoming a market requirement not associated anymore with price premiums, but simply with the ability to reach a specific market or not. The ability to adhere to import requirements that are constantly evolving can be a challenge for most exporting countries. Many developing countries and small-scale fishers face multiple problems in complying with market requirements leading to challenges in keeping existing markets or expanding into new ones. In addition, concerns about the social responsibility in fisheries and aquaculture value chains continue to rise.

38. Import requirements include areas such as quality and safety but are also increasingly related to technical standards and labelling. Capacity building, training and transfer of experience and know-how are needed to support countries in meeting these requirements. Some capacity-building activities are being provided by international organizations and agencies, including FAO in collaboration with WTO and the United Nations Conference on Trade and Development (UNCTAD), and the importing countries themselves, but more support is needed.

39. Investments are often needed in infrastructure, in particular, to improve the cold chain from the landing or harvesting site and onwards through the entire supply chain. Much of the focus so far has been on export-oriented production. However, there are also large unmet needs to improve domestic infrastructure for the distribution of fisheries and aquaculture products in many countries globally. In addition, the full implementation of the WTO Trade Facilitation Agreement (TFA) is expected to expedite the movement, release and clearance of goods across borders, reducing some negative influences on trade.

40. In the last two years, international trade has faced many uncertainties, with more trade-restrictive measures being implemented by countries than in previous years. Although this pattern applies to the general merchandise trade, it is also valid for fisheries and aquaculture products. The importance of global value chains continues to grow. For aquatic products, they became an essential element in connection with outsourcing production.

Main species and prices

41. Trade in fisheries and aquaculture products is becoming more dynamic and is characterized by a greater diversification amongst species and product forms. This reflects the differences in consumers' tastes and preferences, with markets ranging from live aquatic animals to a wide range of processed products. The sector plays an essential role in providing a significant share of nutritious aquatic food for domestic consumption. A growing percentage of international trade of aquatic products is linked with aquaculture products, related to the dramatic increase in aquaculture production.

42. Salmonids (salmon and trout) have been the most important commodity traded in value terms since 2013. Other main export species groups are shrimps and prawns, followed by groundfish (i.e. hake, cod, haddock, Alaska pollock, etc.) and tunas. Fishmeal represents around 3 percent of the value of exports and fish oil about 1 percent. A number of high-volume but relatively low-value species are also traded in large quantities, not only nationally but also at regional and international levels.

43. According to the FAO Fish Price Index (FPI), the average international fish prices were 7 percent higher in 2021 than in 2020, when prices were 7 percent lower with respect to 2019. During the first two months of 2022, prices were 19 percent higher compared to the same period in 2021. The latest FPI also reflects the ongoing divergence of prices for species originating from capture fisheries and aquaculture. While the capture fisheries FPI sub-index showed fewer variations, that of aquaculture was most impacted by the decrease in 2020. This contrast points to the differences in supply availability and the relative lack of integration between markets for the most important farmed and wild species. Although there is limited substitutability between farmed and some wild species in the groundfish/whitefish segment, high-status species like cod are generally well protected from price competition from farmed alternatives. Aquaculture offers no competition for other key wild species, such as cephalopods, despite some experiments being carried out to develop a farming technology.

44. An initial drop in global trade in the first half of 2020 led to significantly reduced global sea freight capacity, with many older vessels being scrapped. The second half of 2020 saw surging demand for goods, which quickly ran into bottlenecks due to reduced availability of vessels, limited supplies of containers among key exporters and backlogs processing vessels at import destinations. As a result, freight cost has increased dramatically, from USD 1 800 for a 40 ft container in January 2020 to USD 9 300 in early 2022.¹⁰ In their 2021 Review of Marine Transport,¹¹ UNCTAD estimated that increased freight rates in the first half of 2021 would set global import prices to grow 11 percent by 2023; freight rates for many routes have doubled since then, with import prices expected likewise to increase.

45. Prices are also expected to increase due to the current unstable economic and geopolitical situation. Rising inflation is a reality facing many countries, with increasing energy costs and the rapid reopening of economies after lockdowns as the main driving factors. In the European Union, the Harmonized Index of Consumer Prices rose to 5.6 percent in January 2022, while the United States' Consumer Price Index increased by 7.9 percent in February 2022 compared to one year before. The surge in fuel prices during the 2022 hike in energy prices will add to this, impacting all stages of the supply chains.

Outlook

46. Many factors will influence the evolution and dynamics of the world's fishery and aquaculture sector. COVID-19 has clarified the need for a recovery that promotes broad-based economic growth and encourages innovation and decarbonisation. It is not clear what the long term impacts will be for the sector. FAO is working in cooperation with Johns Hopkins University, EUROFISH and others to monitor long term impacts and adaptive response to the pandemic among all actors and government agencies.

47. Global supply chains and international trade flows, including the fisheries and aquaculture sector, now face another level of uncertainty brought on by the war in Ukraine. This comes after an already difficult period caused by the COVID-19 pandemic. The war in Ukraine risks causing profound geopolitical changes with tremendous impacts on national, regional and global food security, in addition to the tragic loss of human lives and destruction of buildings and infrastructure. Supply chain disruptions and delays in deliveries are already being observed in fisheries and aquaculture markets. So far, leading adjacent factors include an increase in energy and freight costs with cancellation or rerouting of cargo flights, maritime transport and road and train cargo. Rising prices on raw material inputs for aquafeeds will also lead to higher costs for aquaculture producers and for consumers.

48. Overall, many other factors can impact the fisheries and aquaculture sector. For production, these include environmental degradation and habitat destruction, overfishing, IUU fishing, climate change, transboundary issues concerning natural resource utilization, poor governance, invasion of non-native species, diseases and escapes, accessibility and availability of sites and water resources, as well as to the availability of technology and finance. From the perspective of market access, issues include food safety and traceability, the need to demonstrate that products are not derived from illegal and prohibited fishing operations, the growth of non-tariff measures, and uncertainties around the international trade environment in short to medium terms.

49. The future evolution of the fisheries and aquaculture sector is also very much linked to challenges posed to food systems by socio-economic trends. The world population is expected to reach nearly 10 billion people in 2050, a movement that, on its own, raises concerns about how to feed the world in the future. At the same time, income growth in low- and middle-income countries may imply dietary changes towards higher consumption of animal protein and thus of fisheries and aquaculture products. Moreover, structural changes in the economy, together with urbanization and migration,

¹⁰ World Container Index, Drewry Supply Chain Advisors.

¹¹ unctad.org/system/files/official-document/rmt2021_en_0.pdf

challenge food systems further because they imply modifications in consumption patterns, the way food chains are organized (i.e. higher demand for processed food), and distribution channels.

50. For fisheries and aquaculture, these changes mean maximizing the sector's contribution to food and nutrition security, ensuring that all people at all times have access to good-quality, nutritious food while simultaneously supporting the livelihood of hundreds of millions of people around the world. Maximizing the benefits of the fisheries and aquaculture sector can only be achieved by carefully balancing environmental, social and economic sustainability principles in the management of natural aquatic resources.¹²

¹² See chapter 3 [fao.org/3/i9705en/i9705en.pdf](https://www.fao.org/3/i9705en/i9705en.pdf)