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IN BRIEF

THE STATE OF WORLD FISHERIES AND AQUACULTURE

BLUE TRANSFORMATION IN ACTION

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VIET NAM. Worker repairing a fishing net by hand.

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KEY MESSAGES

1 World fisheries and aquaculture production hit a new high in 2022. Successful initiatives should be upscaled to consolidate the vital role of aquatic foods for global food security, nutrition and livelihoods.

- Global fisheries and aquaculture production surged to 223.2 million tonnes, with 185.4 million tonnes of aquatic animals and 37.8 million tonnes of algae.
- Of the total aquatic animal production, 89 percent was used for human consumption, equivalent to an estimated 20.7 kg per capita in 2022. The rest went on non-food uses, mostly fishmeal and fish oil.
- An estimated 61.8 million people were employed in the primary production sector, mostly in small-scale operations. Sex-disaggregated data indicate that 24 percent of fishers and fish farmers were women compared with 62 percent in the post-harvest sector.
- Over 230 countries and territories were involved in the international trade of aquatic products, reaching a record value of USD 195 billion – a 19 percent increase from pre-pandemic levels in 2019.
- In low- and middle-income countries, the total net trade (exports minus imports) of aquatic animal products reached USD 45 billion – greater than that of all other agricultural products combined.
- Further transformative and adaptive actions are needed to strengthen the resilience of aquatic food systems and consolidate their role in addressing hunger, malnutrition and poverty.

2 Aquaculture can meet the rising global demand for aquatic foods. Future expansion must prioritize sustainability and benefit regions and communities most in need.

- In 2022, global aquaculture production reached 130.9 million tonnes, valued at USD 312.8 billion, 59 percent of global fisheries and aquaculture production.
- Inland aquaculture contributed 62.6 percent of farmed aquatic animals, marine and coastal aquaculture 37.4 percent.
- For the first time, aquaculture surpassed capture fisheries in aquatic animal production with 94.4 million tonnes, representing 51 percent of the world total and a record 57 percent of the production destined for human consumption.
- Aquaculture remains dominated by a small number of countries, with many low-income countries in Africa, Asia and Latin America and the Caribbean not exploiting their full potential.

- Out of some 730 farmed species items, 17 staple species represent about 60 percent of global aquaculture production, while other species are important at local level.
- Targeted policies, technology transfer, capacity building and responsible investment are crucial to boost sustainable aquaculture where it is most needed, in particular in Africa.

3 Global capture fisheries production remains stable, but sustainability of fishery resources is a cause for concern. Urgent action is needed to accelerate fishery stock conservation and rebuilding.

- Global capture fisheries production of aquatic animals has fluctuated between 86 and 94 million tonnes per year since the late 1980s.
- In 2022, the sector produced 92.3 million tonnes, valued at about USD 159 billion and comprising 91.0 million tonnes of aquatic animals – 79.7 million tonnes caught in marine areas and 11.3 million tonnes in inland waters – in addition to 1.3 million tonnes of algae. With a share of 43 percent, marine capture fisheries remain the major source of global aquatic animal production.
- The fraction of marine stocks fished within biologically sustainable levels decreased to 62.3 percent in 2021, 2.3 percent lower than in 2019.
- When weighted by their production level, an estimated 76.9 percent of the 2021 landings were from biologically sustainable stocks. Effective fisheries management leads to stock recovery, and urgent action is needed to replicate successful policies and reverse declining sustainability trends.

4 Global demand for aquatic foods is projected to increase further. Expansion of sustainable production is vital to ensure healthy diets from healthy oceans, lakes and rivers.

- In 2022, global apparent consumption of aquatic animal foods reached an estimated 165 million tonnes, increasing at nearly twice the annual rate of the world population since 1961.
- Global annual per capita apparent consumption of aquatic animal foods rose from 9.1 kg in 1961 to an estimated 20.7 kg in 2022.
- Aquatic animal foods provide high-quality proteins – 15 percent of animal proteins and 6 percent of total proteins worldwide – and key nutrients including omega-3 fatty acids, minerals and vitamins.
- The potential of aquatic foods to contribute to food security, nutrition and poverty reduction is increasingly recognized in major global fora such as the UN Food Systems Summit and the UN Framework Convention on Climate Change.
- Efforts must continue to promote aquatic foods for healthy diets from healthy oceans, lakes and rivers.

5 Aquatic animal production is expected to increase by 10 percent by 2032. The Blue Transformation Roadmap aims to ensure sustainable fisheries and aquaculture growth while promoting equitable benefits and environmental conservation.

- Aquatic animal production is expected to increase by 10 percent by 2032, driven by aquaculture expansion and capture fisheries recovery. It will reach 205 million tonnes – 111 million tonnes from aquaculture and 94 million tonnes from fisheries.
- Up to 90 percent will be destined for human consumption, at a rate of about 21.3 kg per capita. Consumption per capita is expected to grow in all continents, but will likely decline in Africa, particularly sub-Saharan Africa, where many people rely on aquatic foods for nutrition.
- Exports of aquatic animal products will grow, involving 34 percent of the total production in 2032, down from 38 percent in 2022.
- The FAO Blue Transformation Roadmap paves the way for sustainable growth, promoting equitable benefits and reversing environmental degradation.

6 Small-scale fisheries are a vital source of nutrition and livelihoods for millions of people. Greater global recognition and action are needed to support and empower these communities.

- Small-scale fisheries contribute an estimated 40 percent of the global catch and support 90 percent of the capture fisheries workforce, with women representing 40 percent of all those engaged in the aquatic value chain.
- Some 500 million people rely on small-scale fisheries for their livelihoods, including 53 million involved in subsistence fishing – 45 percent of whom are women.
- The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries were endorsed a decade ago, yet the vital role of small-scale fisheries is not sufficiently recognized.
- Enhancing the recognition and governance of small-scale fisheries through co-management approaches remains crucial to secure sustainable exploitation, equitable socioeconomic development and equal opportunities for all.

7 Efforts to improve data collection and analysis must be strengthened. They are key to evidence-based policymaking and the effective management of fisheries and aquaculture.

- FAO, in coordination with Members and partners, has invested significant resources to strengthen capacity, and improve data collection, analytical tools and methodologies for managing fisheries and aquaculture effectively.
- Enhanced fishery stock assessments, revised socioeconomic and technical data, and digital innovations provide more accurate insights and bolster "Blue Transformation in action".
- Improved data and analysis inform global policy debates and guide FAO's initiatives for effective fisheries and aquaculture management at national, regional and global levels.

8 Efforts to achieve the Sustainable Development Goal targets related to fisheries and aquaculture must accelerate. FAO urges the international community to step up actions to support implementation of the Blue Transformation Roadmap.

- Progress in implementing the 2030 Agenda for Sustainable Development remains slow and uneven.
- The indicators on combating illegal, unreported and unregulated fishing and supporting small-scale fisheries show increasing uptake of international guidelines and policies. However, the indicator on increasing the economic benefits from sustainable marine fisheries is lagging, while the percentage of fishery stocks within biologically sustainable levels continues to drift from the target.
- FAO encourages countries to implement the Blue Transformation Roadmap to catalyse change in aquatic food systems and achieve sustainable aquaculture growth, effective fisheries management and upgraded value chains.

FOREWORD

Less than six years before 2030, there are major concerns that progress on most of the Sustainable Development Goals is either moving much too slowly or has regressed, shadowed in the face of intensified challenges. Conflict, climate extremes, environmental degradation and economic shocks combined with the high cost of nutritious foods and growing inequalities continue to threaten food security and nutrition. We know that over 3.1 billion people – more than 40 percent of the world population – cannot afford a healthy diet. Hunger and malnutrition occur unevenly across and within continents and countries, and current agrifood systems are highly vulnerable to shocks and disruptions arising from climate variability and extremes, exacerbating growing inequities.

Today, aquatic systems are increasingly recognized as vital for food and nutrition security. But more can be done to feed a growing and more urbanized population. Because of their great diversity and capacity to supply ecosystem services and sustain healthy diets, aquatic food systems represent a viable and effective solution that offers greater opportunities to improve global food security and nutrition today and for generations to come. However, if we want aquatic food systems to enhance their contribution to sustainable development, transformation is essential. In 2021, FAO adopted the Blue transformation, a Programme Priority Area anchored in the FAO Strategic Framework 2022–2031, aimed at maximizing the opportunities presented by aquatic food systems to enhance food security, improve nutrition, eradicate poverty and support the achievement of the 2030 Agenda for Sustainable Development. Furthermore, these objectives fully align with the key FAO strategies on climate change, innovation and biodiversity.

This edition of *The State of World Fisheries and Aquaculture* is devoted to "Blue Transformation in action". It illustrates how FAO effectively uses its resources, expertise and comparative advantage to promote collaborative efforts and initiatives involving Members, partners and key stakeholders. Implemented through the Blue Transformation Roadmap – presented at FAO Regional Conferences during 2024 –

these efforts focus on priority actions to achieve three global objectives: sustainable aquaculture growth to meet the increasing demand for aquatic foods; effective fisheries management for healthier fishery stocks and equitable livelihoods; and upgrading of aquatic food value chains to guarantee their social, economic and environmental sustainability.

The State of World Fisheries and Aquaculture 2024 has benefited from significant improvements in data collection, analytical and assessment tools, and methodologies generating more reliable and expanded data on the state of world fisheries and aquaculture resources, and their exploitation and utilization. In 2022, fisheries and aquaculture production reached an all-time high of 223.2 million tonnes, worth a record USD 472 billion and contributing an estimated 20.7 kg of aquatic animal foods per capita. This constituted about 15 percent of the animal protein supply, reaching over 50 percent in several countries in Asia and Africa. While capture fisheries production has remained largely unchanged for decades, aquaculture has increased by 6.6 percent since 2020, contributing over 57 percent of aquatic animal products used for direct human consumption. The fisheries and aquaculture sector employs an estimated 62 million people in primary production alone. Where sex-disaggregated data are available, approximately 24 percent of the total workforce were women; of these, 53 percent were employed in the sector on a full-time basis, a great improvement since 1995, when only 32 percent of women were employed full time. Aquatic products continue to be one of the most traded food commodities, involving over 230 countries and territories and generating a record USD 195 billion in 2022 considering all aquatic products.

Despite these significant achievements, the sector still faces major challenges from climate change and disasters, water scarcity, pollution, biodiversity loss and other anthropogenic impacts. We need to accelerate efforts to ensure 100 percent of fishery stocks are placed under effective management, to reverse unsustainable practices, combat illegal, unreported and unregulated fishing, and reduce

overfishing. An ecosystem approach should be at the centre of future aquaculture intensification and expansion, to minimize environmental impacts and secure animal health and food safety, with an efficient, diverse and sustainable use of inputs and resources, in particular water, land and feed, while improving yields and supporting livelihoods, especially for the most vulnerable communities and populations. Although significant improvements are reported in processing and utilization of aquatic foods, additional efforts are required to reduce loss and waste of aquatic products, upscaling successful FAO initiatives promoting innovative technologies, implementing circular economy solutions, facilitating access of producers, particularly small-scale ones, to regional and international markets and making aquatic foods available to all consumers.

The importance of fisheries and aquaculture for Sustainable Development Goal 14 – Conserve and sustainably use the oceans, seas and marine resources for sustainable development – highlights the responsibility of FAO, as custodian of four out of ten indicators of SDG 14, to accelerate the global momentum to secure healthy diets from healthy and productive oceans. This is being effectively implemented through activities aimed at improving the capacities of Members to implement, monitor and report progress and to inform on the challenges they face for achieving SDG 14 targets related to fisheries and aquaculture.

Recognition of the importance of fisheries and aquaculture in global fora is illustrated by the increasing inclusion of aquatic food systems in United Nations Food Systems Summit dialogues, United Nations Framework Convention on Climate Change negotiations and the Kunming-Montreal Global Biodiversity Framework, in addition to the adoption of the Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction, and the World Trade Organization Agreement on Fisheries Subsidies, as well as the upcoming international agreement on plastic pollution, including in the marine environment.

Our world population is projected to reach 8.5 billion by 2030 – many living in urban areas – with almost 600 million people remaining chronically undernourished. Providing sufficient food, nutrition and livelihoods for this growing population demands significant investments. As highlighted in this report, aquaculture has a major role to play, particularly in Africa where its great potential is not yet realized. We need to urgently explore all opportunities and take transformative action to make agrifood systems more efficient, more inclusive, more resilient and more sustainable. These transformative actions are needed to move forwards into a world with better production, better nutrition, a better environment and a better life, leaving no one behind.

The State of World Fisheries and Aquaculture, an FAO flagship publication, continues to provide evidence-based information, policy and technical insights on challenges and innovations shaping the present and future of the sector. I hope that this 2024 edition will meet the expectations of its expanding audience of policymakers, managers, scientists, fishers, farmers, traders, civil society and consumers to inform on the vital role and contributions of fisheries and aquaculture in addressing the challenges of the twenty-first century.

Qu Dongyu
FAO Director-General

UNITED STATES OF AMERICA
Cage culture in a floating fish farm.
© Tolga Aslantürk

PART 1
WORLD REVIEW

GLOBAL FISHERIES AND AQUACULTURE AT A GLANCE

Combating hunger, malnutrition and poverty remains essential for achieving the goals and targets of the 2030 Agenda for Sustainable Development. Aquatic systems are increasingly recognized for the environmentally sound solutions they offer to sustain food security, poverty alleviation and socioeconomic development, particularly for the many coastal and riparian communities around the world. Acceleration of transformative actions is required to strengthen further this role.

The State of World Fisheries and Aquaculture 2024 analyses the status and trends of global fisheries and aquaculture up to 2022. It features "Blue Transformation in action", depicting the role of FAO in leading collaborative efforts and initiatives involving Members, partners and key stakeholders to guide global policy processes and disseminate best practices in support of sustainable fisheries and aquaculture.

The year 2022 was a year of records for fisheries and aquaculture production, utilization and trade. Global production reached a new record of 223.2 million tonnes, comprising 185.4 million tonnes (live weight equivalent) of aquatic animals and 37.8 million tonnes (wet weight) of algae. Aquaculture production reached an all-time high of 130.9 million tonnes, 94.4 million tonnes of aquatic animals and 36.5 million tonnes of algae. For the first time, production of animal species from aquaculture (51 percent) surpassed that from capture fisheries (Table 1 and Figure 1).

Eighty-nine percent of the total production of aquatic animals was destined for human consumption, supplying the equivalent of 20.7 kg per capita (Figure 2). Per capita apparent consumption of aquatic animal foods continued to grow, increasing at an average annual rate of 1.4 percent from 9.1 kg in 1961 to 20.6 kg in 2021, driven by increased supplies, advancements in preservation and distribution technology, changing consumer preferences, and income growth.

Exports of aquatic animal products increased by 19 percent (in value) in 2022 compared with 2019. They concerned 38 percent of the total production and generated USD 192 billion (Table 1). This new world high represents more than 9.1 percent of total agricultural trade (excluding forest products) and about 1 percent of total merchandise trade in value terms in 2022.

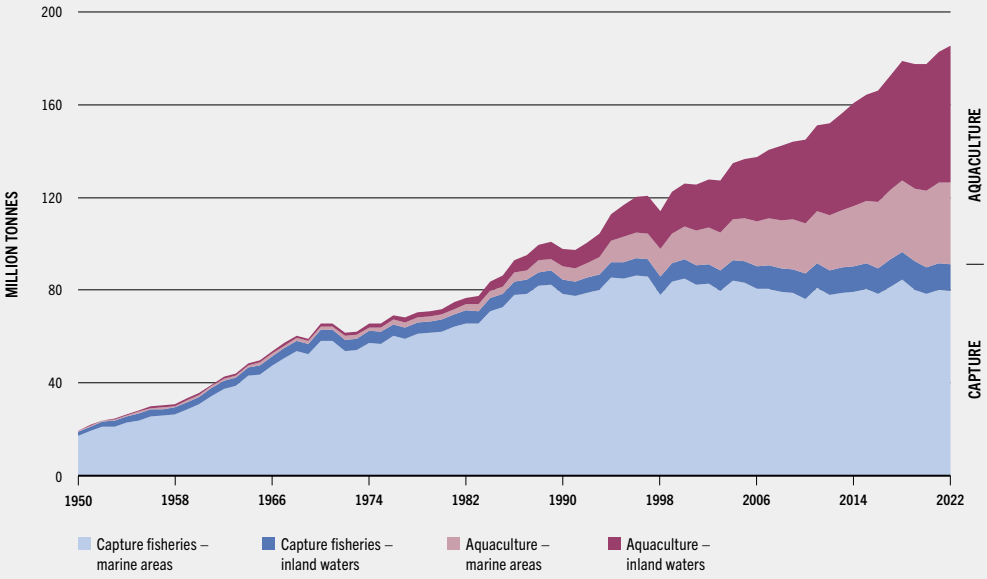
TABLE 1 WORLD FISHERIES AND AQUACULTURE TRENDS AT A GLANCE

	1990s	2000s	2010s	2020	2021	2022
	Average per year					
	(million tonnes, live weight equivalent)					
Production						
Capture fisheries:						
Inland	7.1	9.3	11.3	11.5	11.4	11.3
Marine	81.9	81.6	79.8	78.3	80.3	79.7
Total capture fisheries	**88.9**	**90.9**	**91.1**	**89.8**	**91.6**	**91.0**
Aquaculture:						
Inland	12.6	25.6	44.8	54.5	56.4	59.1
Marine	9.2	17.9	26.7	33.2	34.7	35.3
Total aquaculture	**21.8**	**43.4**	**71.5**	**87.7**	**91.1**	**94.4**
Total world fisheries and aquaculture	**110.7**	**134.3**	**162.6**	**177.5**	**182.8**	**185.4**
Utilization*						
Human consumption	81.6	109.3	143.1	157.4	162.5	164.6
Non-food uses	29.1	25.0	19.5	20.1	20.3	20.8
Per capita apparent consumption (kg)	14.4	16.9	19.5	20.2	20.6	20.7
Trade**						
Exports – in quantity	39.3	51.2	60.8	63.8	67.8	70.0
Share of exports in total production (%)	*35.4*	*38.3*	*37.5*	*35.8*	*36.9*	*37.6*
Exports – in value (USD billion)	46.6	76.4	141.8	151.0	176.6	192.2
Employment (millions of people)***						
Aquaculture	12.1	15.9	21.9	22.2	22.3	22.1
Fisheries	24.4	29.1	31.9	34.3	33.4	33.6
Unspecified	7.2	6.8	7.0	6.3	6.1	6.1
Fishing fleet (millions of vessels)****						
Motorized and non-motorized vessels	4.5	4.7	5.0	5.3	5.1	4.9

NOTES: Data on production, utilization and trade refer to aquatic animals, excluding aquatic mammals, crocodiles, alligators, caimans, aquatic products (corals, pearls, shells and sponges) and algae. Data may not match totals due to rounding.
* Utilization data for 2020–2022 are provisional estimates. These data might differ from the apparent consumption data as they do not take into account trade. ** Exports including re-exports. Share of trade in total production calculated excluding re-exports. Trade data do not include frogs and turtles. *** Employment refers to the number of people engaged in the primary sector only. Figures for the 1990s are based on 1995–1999 data. **** Fishing fleet figures for the 1990s are based on 1995–1999 data.

SOURCES: For production: FAO. 2024. FishStat: Global production by production source 1950–2022. [Accessed on 29 March 2024]. In: FishStatJ. Available at www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.
For trade: Preliminary data. Final data available here: FAO. 2024. Global aquatic trade statistics. https://www.fao.org/fishery/en/collection/global_commodity_prod. Licence: CC-BY-4.0.
For employment: Preliminary data. Final data available here: FAO. (forthcoming). *Fishery and Aquaculture Statistics – Yearbook 2022*. FAO Yearbook of Fishery and Aquaculture Statistics. Rome. https://www.fao.org/fishery/en/statistics/yearbook
Population data used to calculate apparent per capita consumption are based on United Nations Population Division. 2022. World Population Prospects 2022. [Accessed 13 January 2023]. https://population.un.org/wpp

FIGURE 1 **WORLD FISHERIES AND AQUACULTURE PRODUCTION OF AQUATIC ANIMALS**



NOTES: Aquatic animals excluding aquatic mammals, crocodiles, alligators, caimans, aquatic products (corals, pearls, shells and sponges) and algae. Data expressed in live weight equivalent.

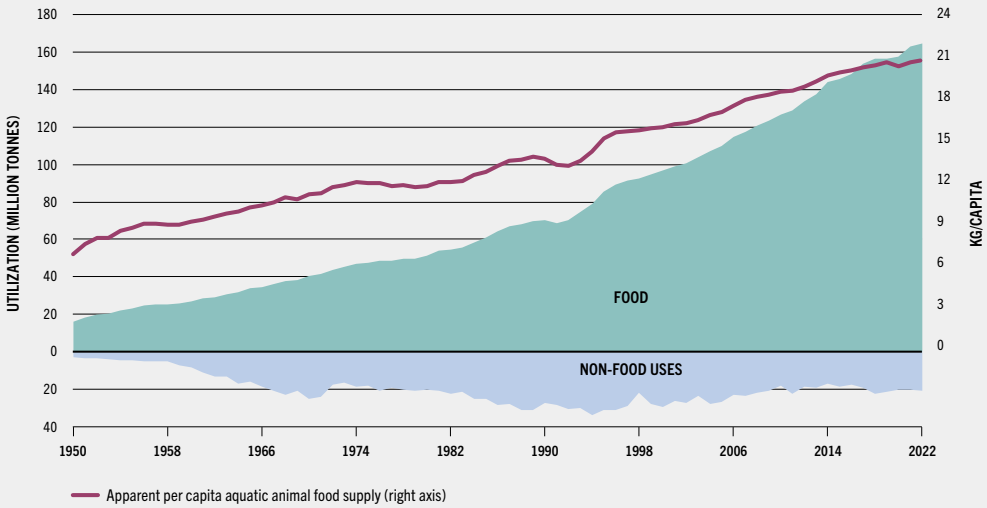
SOURCE: FAO. 2024. FishStat: Global production by production source 1950–2022. [Accessed on 29 March 2024]. In: FishStatJ. Available at www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.

TOTAL PRODUCTION OF FISHERIES AND AQUACULTURE

World production of fisheries and aquaculture reached an all-time record of 223.2 million tonnes in 2022, 185.4 million tonnes of aquatic animals and 37.8 million tonnes of algae. Of the total production of aquatic animals in 2022, 62 percent was harvested in marine areas (69 percent from capture fisheries and 31 percent from aquaculture) and 38 percent in inland waters (84 percent from aquaculture and 16 percent from capture fisheries) (Figure 1).

These figures mask significant variations between regions and countries. Asian countries produced 70 percent of the total output of aquatic animals, followed by countries in Europe and Latin America and the Caribbean (9 percent each), Africa (7 percent), Northern America (3 percent) and Oceania (1 percent) (Figure 4). China remained the major

FIGURE 2 UTILIZATION OF WORLD FISHERIES AND AQUACULTURE PRODUCTION OF AQUATIC ANIMALS



NOTES: Aquatic animals excluding aquatic mammals, crocodiles, alligators, caimans, aquatic products (corals, pearls, shells and sponges) and algae. Data expressed in live weight equivalent.

SOURCES: Preliminary data. Final data available here: FAO. (forthcoming). *Fishery and Aquaculture Statistics – Yearbook 2022*. FAO Yearbook of Fishery and Aquaculture Statistics. Rome. https://www.fao.org/fishery/en/statistics/yearbook
Population data are based on United Nations Population Division. 2022. World Population Prospects 2022. [Accessed on 13 January 2023]. https://population.un.org/wpp

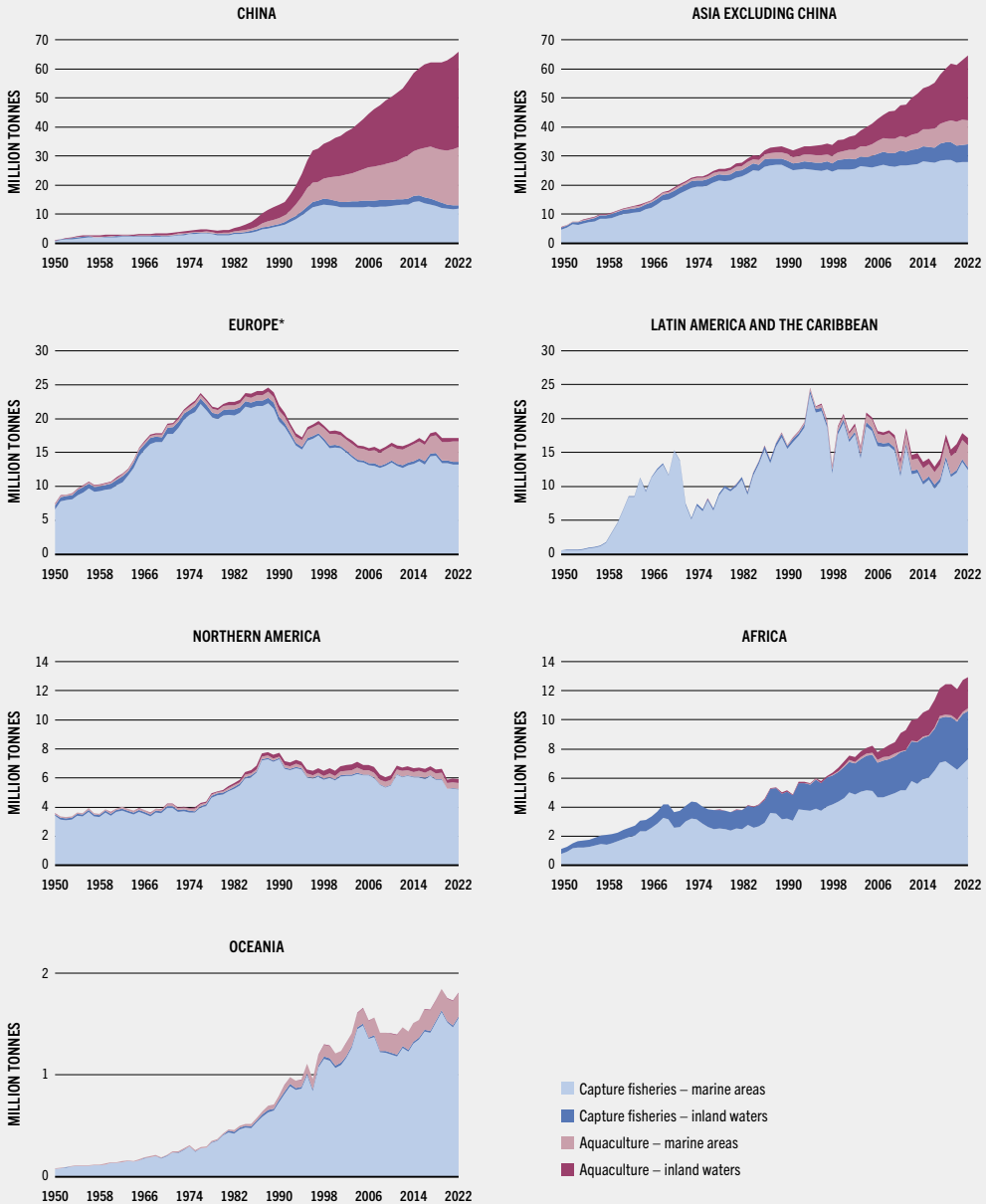
producer in 2022 (36 percent), followed by India (8 percent), Indonesia (7 percent), Viet Nam (5 percent) and Peru (3 percent).

AQUACULTURE PRODUCTION

World aquaculture production reached a new record of 130.9 million tonnes in 2022, up by 6.6 percent from 2020 and comprising 94.4 million tonnes of aquatic animals and 36.5 million tonnes of algae (Figure 7). Asia contributed 91.4 percent of total aquaculture production, followed by Latin America and the Caribbean (3.3 percent), Europe (2.7 percent), Africa (1.9 percent), Northern America (0.5 percent) and Oceania (0.2 percent). Ten leading countries (China, Indonesia, India, Viet Nam, Bangladesh, Philippines, Republic of Korea, Norway, Egypt and Chile) produced 89.8 percent of the total.

For the first time in history, in 2022, production of animal species from aquaculture (51 percent) surpassed that from capture fisheries. This production increased by 6.7 million tonnes »

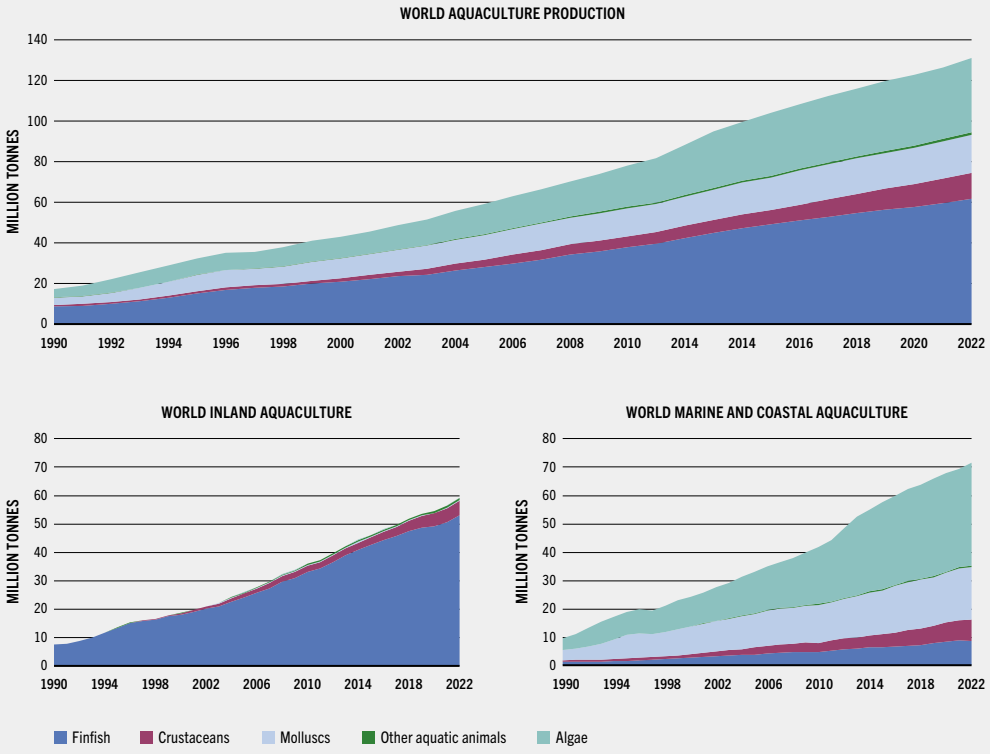
FIGURE 4 WORLD FISHERIES AND AQUACULTURE PRODUCTION OF AQUATIC ANIMALS BY REGION, 1950–2022



NOTES: Aquatic animals excluding aquatic mammals, crocodiles, alligators, caimans, aquatic products (corals, pearls, shells and sponges) and algae. Data expressed in live weight equivalent. Different scales used to improve the readability of the trends.
* Europe includes data for the Union of Soviet Socialist Republics for the years 1950–1991.

SOURCE: FAO. 2024. FishStat: Global production by production source 1950–2022. [Accessed on 29 March 2024]. In: FishStatJ. Available at www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.

FIGURE 7 WORLD AQUACULTURE PRODUCTION, 1990–2022



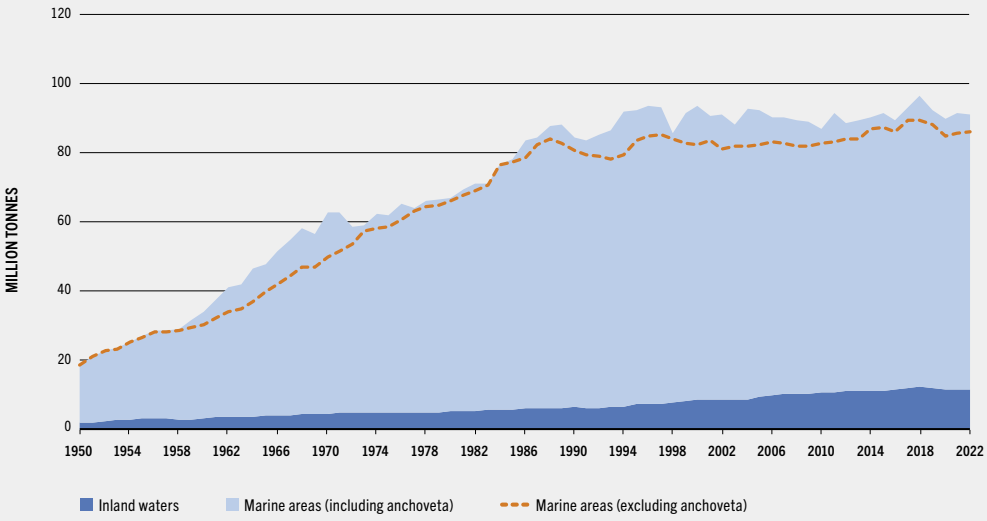
NOTES: Data on aquatic animals exclude crocodiles, alligators, caimans, aquatic products (corals, pearls, shells and sponges) and algae. Data expressed in live weight equivalent for aquatic animals and wet weight for algae.

SOURCE: FAO. 2024. FishStat: Global aquaculture production 1950–2022. [Accessed on 29 March 2024]. In: FishStatJ. Available at www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.

» (7.6 percent) from 2020, largely in Asia (87.9 percent of the increase), followed by Latin America and the Caribbean (7.3 percent), Europe (3.5 percent) and Africa (0.8 percent). The increase was mainly in finfish aquaculture (58.1 percent), followed by crustaceans (24.6 percent) and molluscs (15.6 percent).

Inland aquaculture produced 62.6 percent of total farmed aquatic animals. Fed aquaculture production continued to outpace non-fed aquaculture production, representing 73.1 percent of the total in 2022 compared with 60.3 percent in 2000.

FIGURE 13 WORLD CAPTURE FISHERIES PRODUCTION OF AQUATIC ANIMALS, 1950–2022



NOTES: Aquatic animals excluding aquatic mammals, crocodiles, alligators, caimans, aquatic products (corals, pearls, shells and sponges) and algae. Data expressed in live weight equivalent.

SOURCE: FAO. 2024. FishStat: Global capture production 1950–2022. [Accessed on 29 March 2024]. In: FishStatJ. Available at www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.

CAPTURE FISHERIES PRODUCTION

World capture fisheries produced 92.3 million tonnes in 2022, comprising 91.0 million tonnes of aquatic animals and 1.3 million tonnes of algae. China remained the top capture fisheries producer (14.3 percent), followed by Indonesia (8.0 percent), India (6.0 percent), Peru (5.8 percent), the Russian Federation (5.4 percent), the United States of America (4.6 percent), Viet Nam (3.9 percent) and Japan (3.2 percent).

Marine capture fisheries produced 79.7 million tonnes of aquatic animals in 2022 and remains the main source (43 percent) of global aquatic animal production. Finfish accounted for about 85 percent of total marine capture production in 2022, led by anchoveta (4.9 million tonnes), Alaska pollock (3.4 million tonnes) and skipjack tuna (3.1 million tonnes). Catches of valuable species groups continued to increase in 2022, reaching a record 8.3 million tonnes for tunas and tuna-like species, 3.9 million tonnes for cephalopods and 3.3 million tonnes for shrimps and lobsters.

Total inland fisheries production of aquatic animals was 11.3 million tonnes in 2022, harvested mainly in Asia (63.4 percent), Africa (29.4 percent), Europe (3.5 percent) and Latin America and the Caribbean (3.3 percent). The top five producers were India (1.9 million tonnes), Bangladesh (1.3 million tonnes), China (1.2 million tonnes), Myanmar (0.9 million tonnes) and Indonesia (0.5 million tonnes). The three major freshwater species groups were "carps, barbels and other cyprinids" (1.8 million tonnes), "tilapias and other cichlids" (0.8 million tonnes) and "shads" (0.3 million tonnes). These figures may be underestimated as many countries continue to face major difficulties collecting accurate data for inland fisheries.

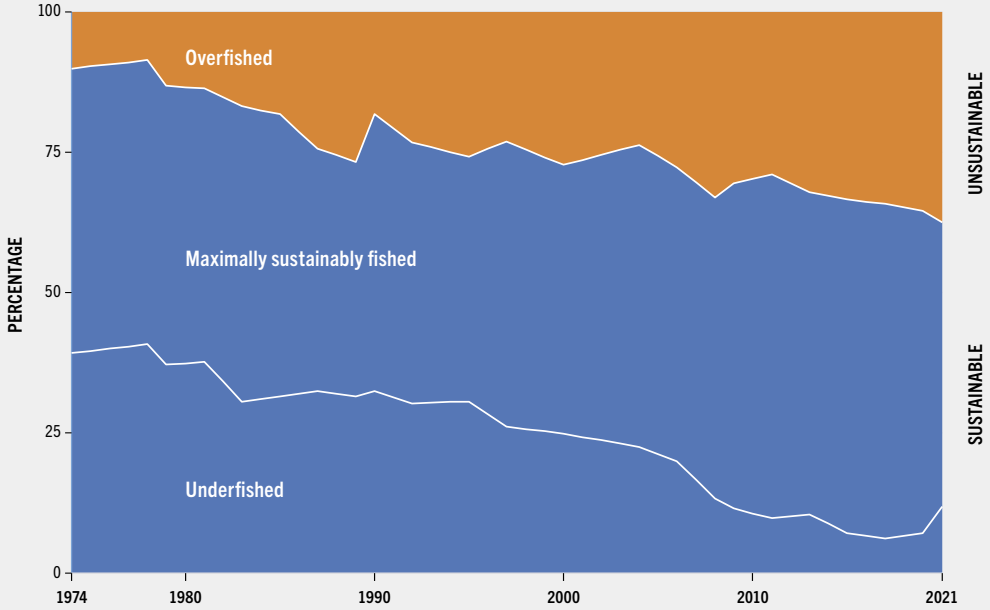
THE STATUS OF FISHERY RESOURCES

The fraction of marine fishery stocks within biologically sustainable levels continued to decline, falling to 62.3 percent in 2021, 2.3 percent lower than in 2019, although wide variation was reported across the 15 FAO Major Fishing Areas monitored (Figure 18).

However, when we consider production levels of the ten marine species with the largest landings (representing 27.4 percent of total landings) in 2021, 78.9 percent of their stocks were fished within biologically sustainable levels in 2021, significantly higher than the world average of 62.3 percent. Likewise, 87 percent across major tuna stocks were within biologically sustainable levels. These examples confirm that effective fisheries management yields positive outcomes, highlighting the urgent need to replicate successful policies and management measures in unsustainable fisheries.

Differently from many species in the marine environment, inland fishery stocks can experience and recover rapidly from the elevated levels of mortality associated with unpredictable environments. While fishing pressure in some inland waters is high because of the many people involved, environmental factors often play a greater role in their productivity, sustainability and resilience. Furthermore, lack of national capacity and resources and the low priority given to inland fisheries are major obstacles to monitor and manage such fisheries. According to recent data from the FAO global threat map, 47 percent of major basins important to inland fisheries are under "low pressure", 40 percent under "moderate pressure" and 13 percent under "high pressure". This is an improvement on the preliminary results reported in 2022. These results can help inform the prioritization of interventions in the context of integrated water resources management.

FIGURE 18 GLOBAL TRENDS IN THE STATE OF THE WORLD'S MARINE FISHERY STOCKS, 1974–2021



SOURCE: FAO estimates.

FISHING FLEET

The fishing fleet was estimated at 4.9 million vessels in 2022, two-thirds of which were motorized. Asia hosts the world's largest fishing fleet (71 percent of the total), followed by Africa (19 percent), Latin America and the Caribbean (5 percent), Northern America and Europe (2 percent each), and Oceania (less than 1 percent). Many fishing nations such as China, Japan and European Union Member States continue their strategy of reducing fishing vessels. Asia hosts the largest fleets of motorized (80 percent) and non-motorized (54 percent) vessels and Africa hosts the second-largest non-motorized fishing fleet.

EMPLOYMENT IN FISHERIES AND AQUACULTURE

Employment in the primary sector of fisheries and aquaculture in 2022 was estimated at 61.8 million full-time, part-time and occasional workers, a slight decrease from 62.8 million in 2020, with 54 percent of the workforce employed in fisheries and 36 percent in aquaculture while the subsector was not specified for 10 percent

of the workforce. Asia employed 85 percent of the workers, followed by Africa (10 percent) and Latin America and the Caribbean (4 percent), with Europe, Oceania and Northern America combined accounting for just 1 percent. Most aquaculture workers were in Asia (95 percent), followed by Africa (3 percent) and Latin America and the Caribbean (2 percent). In fisheries, 77 percent of the global workforce was in Asia, 16 percent in Africa and 5 percent in Latin America and the Caribbean. Where data are disaggregated by sex (66 percent of the data), women accounted for 24 percent of fishers and fish farmers (28 percent in inland fisheries) and 62 percent of processing workers in 2022.
Fifty-three percent of women were employed on a full-time basis, compared with 57 percent of men. However, gender inequality issues remain, including difference in wages, insufficient recognition of women's contribution to the sector, and gender-based violence.

UTILIZATION AND PROCESSING

Utilization and processing of aquatic products continue to improve, making available for human consumption 89 percent of the global production of aquatic animals (185.4 million tonnes) in 2022. The remaining volume was used for non-food purposes, mainly to produce fishmeal and fish oil (Figure 2).

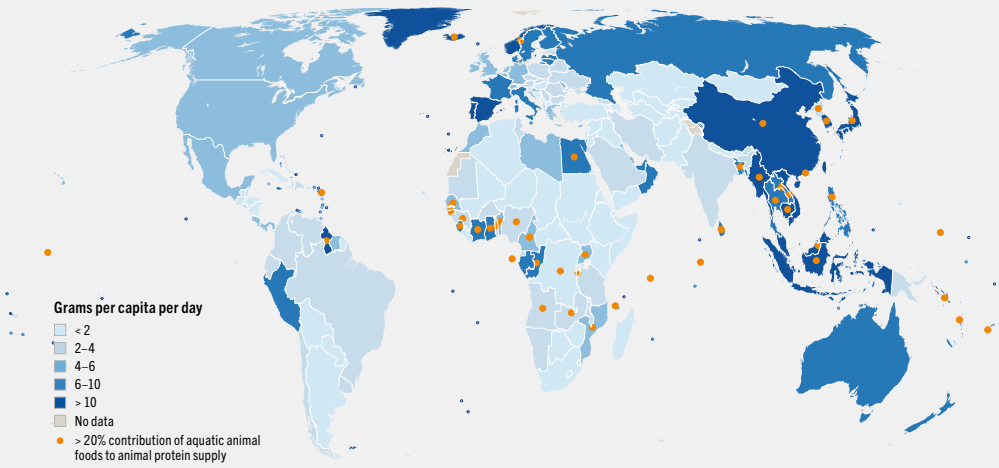
The largest share (43 percent) of aquatic animals for human consumption was distributed in live, fresh or chilled form, followed by frozen (35 percent), prepared and preserved (12 percent), and cured (10 percent). Overall, in high-income countries, aquatic foods are mostly processed, and traditional methods of preservation are increasingly replaced by more value-adding processes in many other countries. By-products of aquatic animals, traditionally discarded as waste, are increasingly used to prepare food and non-food products. In 2022, 34 percent of the global production of fishmeal and 53 percent of the total production of fish oil were obtained from by-products.

APPARENT CONSUMPTION OF AQUATIC FOODS

Global apparent consumption of aquatic animal foods was 162.5 million tonnes (live weight equivalent) in 2021, bringing the average annual growth to 3.0 percent since 1961 – much greater than the world annual population growth of 1.6 percent – and increasing per capita consumption from 9.1 kg in 1961 to 20.6 kg in 2021 (Figure 2). This growth exceeds that of all terrestrial meats combined, estimated at 2.7 percent per year from 1961 to 2021. Asia accounted for 71 percent of this apparent consumption, followed by Europe (10 percent), Africa (8 percent), Northern America (5 percent), Latin America and the Caribbean (4 percent) and Oceania (1 percent).

Between 1961 and 2021, consumption of aquatic animal foods by Europe, Japan and the United States of America combined decreased from 47 percent to

FIGURE 39 CONTRIBUTION OF AQUATIC ANIMAL FOODS TO ANIMAL PROTEIN SUPPLY PER CAPITA, AVERAGE 2019–2021



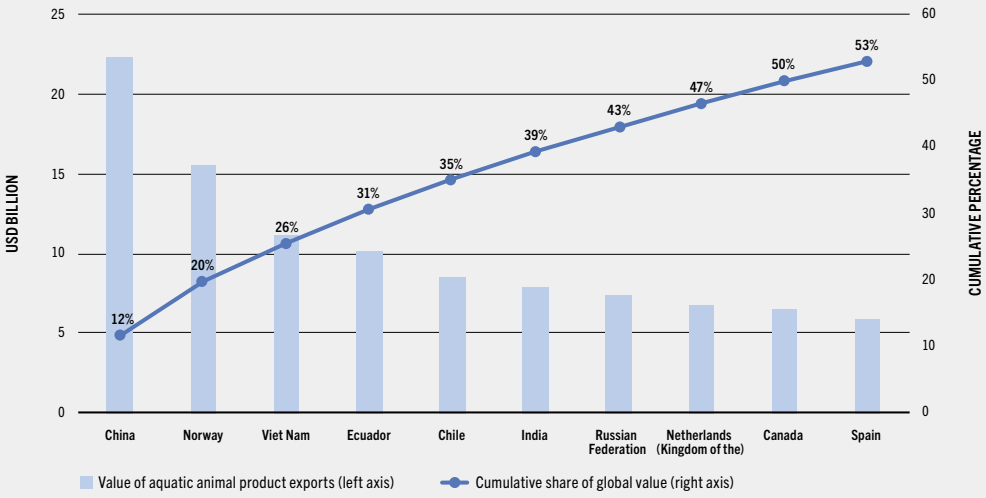
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.

SOURCES: Preliminary data. Final data available here: FAO. 2024. Consumption of aquatic products. https://www.fao.org/fishery/en/collection/global_fish_consump. Licence: CC-BY-4.0.
Population data are based on United Nations Population Division. 2022. World Population Prospects 2022. [Accessed 13 January 2023]. https://population.un.org/wpp
United Nations Geospatial. 2020. Map geodata.

18 percent of the total. Meanwhile, the shares of China, Indonesia and India increased significantly from only 17 percent in 1961 to 51 percent in 2021, with China alone representing 36 percent of the world consumption of aquatic animal foods.

Globally, aquatic animal foods supplied 15 percent of animal proteins and 6 percent of all proteins in 2021. They contributed at least 20 percent of the per capita protein supply from all animal sources to 3.2 billion people (Figure 39). Non-high-income countries generally rely more heavily on proteins from aquatic animal foods, compared with high-income countries. This reflects the affordability, availability and accessibility of aquatic foods, making

FIGURE 46 TOP TEN EXPORTING COUNTRIES OF AQUATIC ANIMAL PRODUCTS BY VALUE, 2022



SOURCE: Preliminary data. Final data available here: FAO. 2024. Global aquatic trade statistics. https://www.fao.org/fishery/en/collection/global_commodity_prod. Licence: CC-BY-4.0.

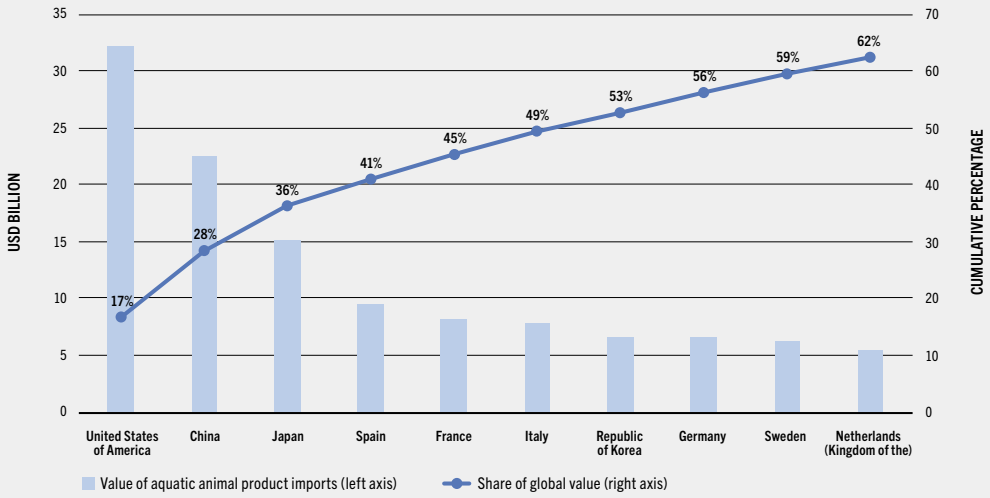
them a staple of choice in many culinary traditions of non-high-income countries.

TRADE OF AQUATIC PRODUCTS

Global trade of aquatic products continued to grow, involving over 230 countries and territories and generating a record USD 195 billion in 2022. Trade of aquatic animal products represented over 9.1 percent of total agricultural trade (excluding forest products) and about 1 percent of total merchandise trade in value. In countries and territories such as the Faroe Islands, Maldives and Seychelles, however, it accounted for over 30 percent of total merchandise trade.

Exports of aquatic animals increased from USD 7.9 billion in 1976 to USD 192 billion in 2022 at an average annual growth rate of 7.2 percent in nominal terms and 4.0 percent in real terms, facilitated by the liberalization of trade policies, reduced transportation costs, and improved technology, logistics and storage. With 12 percent of global export value in 2022, China remained the main exporter of aquatic animal products, followed by Norway (8 percent), Viet Nam (6 percent), Ecuador (5 percent) and Chile (4 percent)

FIGURE 47 TOP TEN IMPORTING COUNTRIES OF AQUATIC ANIMAL PRODUCTS BY VALUE, 2022



SOURCE: Preliminary data. Final data available here: FAO. 2024. Global aquatic trade statistics. https://www.fao.org/fishery/en/collection/global_commodity_prod. Licence: CC-BY-4.0.

(Figure 46). The European Union was the largest single market, importing USD 62.7 billion of aquatic animal products in 2022, including USD 29.5 billion of intra-European Union trade. The largest single importing country was the United States of America (17 percent), followed by China (12 percent), Japan (8 percent), Spain (5 percent) and France (4 percent) (Figure 47).

The most traded aquatic animal products in 2022 were finfish (65 percent of the total value), crustaceans (23 percent), and molluscs and other aquatic invertebrates (11 percent). Salmonids remain the most valuable traded aquatic species group (20 percent in value), followed by shrimps and prawns (17 percent), cods, hakes and haddocks (9 percent), tunas, bonitos and billfishes (9 percent), and cephalopods (7 percent).

STATUS AND TRENDS OF SUSTAINABLE DEVELOPMENT GOAL 14 INDICATORS UNDER FAO CUSTODIANSHIP

FAO supports its Members and other actors to work towards achieving several SDG targets, in particular the targets of SDG 14 (Life below Water) relevant to fisheries and aquaculture, measuring and reporting

progress through the SDG indicator framework.

Overall, there has been good progress in the adoption of the SDG 14 monitoring and reporting framework by countries across the biological, social and economic sustainability dimensions covered by the four fisheries indicators under FAO custodianship. FAO has successfully supported the development of the indicators, their monitoring and reporting methodologies and the related capacity development.

Significant progress towards achieving the targets of indicators measuring progress in the adoption of instruments to combat illegal, unreported and unregulated fishing (14.6.1) and to support small-scale fisheries (14.b.1) has been achieved. This testifies to the general uptake of international policies and guidelines by countries. However, there remains much to do in terms of implementation on the ground. On the other hand, the indicator on increasing the economic benefits from sustainable marine fisheries (14.7.1) is lagging, while the percentage of fishery stocks within biologically sustainable levels (14.4.1) continues to drift from its target.

Full implementation and reporting by Members are works in progress and challenges remain, especially for developing countries. Moreover, the good reporting by certain countries should not distract attention from those countries still unable to report, including many least developed countries and Small Island Developing States. FAO encourages countries to implement the Blue Transformation Roadmap to catalyse change in aquatic food systems and achieve sustainable aquaculture intensification and expansion, effective fisheries management and upgraded chains. ■

PART 2
BLUE TRANSFORMATION IN ACTION

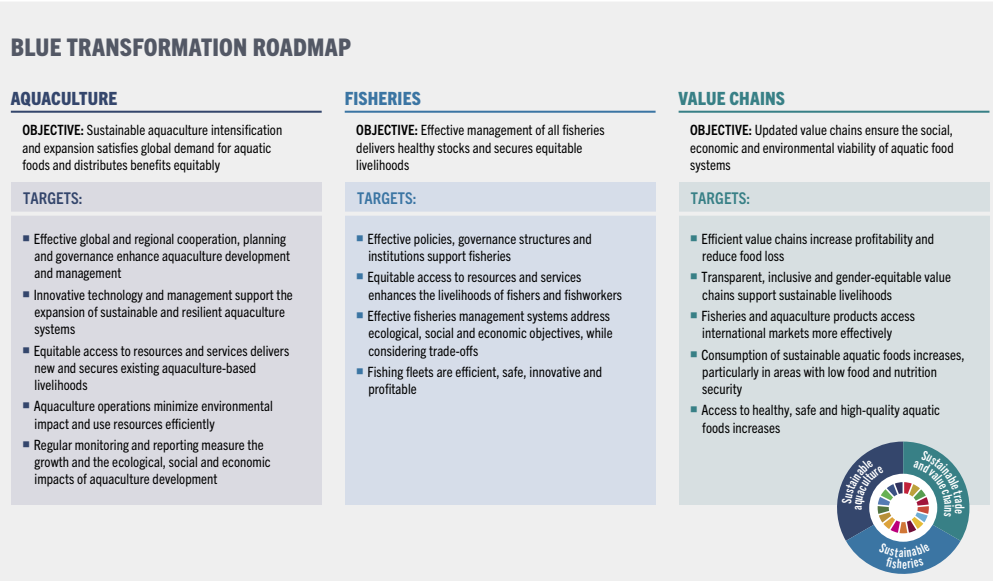
BLUE TRANSFORMATION: A ROADMAP

In 2021, FAO launched the Blue Transformation vision, aimed at maximizing the opportunities presented by aquatic food systems to enhance food security, improve nutrition, eradicate poverty and support the achievement of the 2030 Agenda for Sustainable Development. In line with the FAO Strategic Framework 2022–2031 and its corporate strategies, the Blue Transformation Roadmap proposes clear objectives, concrete priority actions and quantifiable targets to guide, monitor and report on global efforts to achieve this vision (Figure 56).

SUSTAINABLE AQUACULTURE IN ACTION

FAO collaborates with Members, and a global network of stakeholders, practitioners and experts to promote initiatives and disseminate innovations and technology, aiming to improve aquaculture systems, aquafeeds, aquatic genetic resource management and biosecurity for healthier, more efficient and safer production, particularly in Africa where its great potential is not yet fully realized. Key actions and initiatives deployed include development of the Guidelines for Sustainable Aquaculture, a negotiated global document that will guide into the future the development of governance and institutional frameworks to support planning, innovation, research and investment in sustainable aquaculture expansion and intensification; implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Aquatic Genetic Resources for Food and Agriculture for rational and effective management of aquatic genetic resources; promotion of the global information system on aquatic genetic resources to collect and store information on farmed types and wild stocks of aquaculture species; adoption and implementation of the Progressive Management Pathway both for aquaculture biosecurity and for antimicrobial resistance; elaboration of National or Regional Aquatic Organism Health Strategies to achieve aquatic biosecurity and address disease challenges; establishment of the FAO Reference Centres for Antimicrobial Resistance and Aquaculture Biosecurity to reduce the need for antimicrobials; piloting of the transfer and adoption of innovative systems and technologies to expand aquaculture into new regions, improve feeding management, aquafeed supply and on-farm made aquafeeds with use of local ingredients or fish silage, and

FIGURE 56 OBJECTIVES AND TARGETS OF BLUE TRANSFORMATION



SOURCE: Adapted from FAO. 2022. *Blue Transformation - Roadmap 2022–2030: A vision for FAO's work on aquatic food systems.* Rome. https://doi.org/10.4060/cc0459en

encourage aquaculture digitalization; and establishment of the Global Sustainable Aquaculture Advancement Partnership, a platform to enhance the scientific basis of aquaculture and promote continuous innovations.

IMPROVING FISHERIES SUSTAINABILITY

FAO-led initiatives aim to achieve healthier global fishery stocks and equitable livelihoods for people and communities that depend on capture fisheries, in particular small-scale fisheries. These initiatives address the dissemination, adoption and implementation of international instruments, tools and methodologies.

To strengthen international efforts to combat illegal, unreported and unregulated (IUU) fishing, the Port State Measures Agreement was reinforced by the FAO Global Information Exchange System, the Voluntary Guidelines for Transshipment, and expansion of the global capacity development programme, enhancing national capacities and the ability to combat IUU fishing and eliminate loopholes enabling uncontrolled and undeclared movement of capture fisheries products.

A decade after their endorsement, the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries are at the centre of FAO's work and its network of partners. Their implementation focuses on national and local levels, where National Plans of Action for Small-Scale Fisheries (NPOAs-SSF) provide the framework for accelerated transformation. Capacity building to support development and implementation of participatory NPOAs-SSF, supported by studies such as "Illuminating Hidden Harvests", provide policymakers and practitioners with the necessary tools and information to integrate further small-scale fisheries in broader policies of food systems, sustainable development and livelihoods. FAO support to regional fishery bodies (RFBs) has been enhanced to strengthen their capacity to address the challenges presented by newly adopted agreements dealing with fisheries subsidies, the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, and plastic pollution, including in the marine environment. This work is facilitated by the FAO-hosted RFB Secretariats' Network, where over 50 RFBs share experiences and adopt common approaches on cross-cutting issues regarding marine and inland fisheries worldwide.

FAO is leading an initiative to update science-based approaches to assess the status of world fishery resources, engaging more with the growing community of assessment and management experts and centres. The list of stocks analysed in each region is being updated and significantly increased to better reflect the realities in fisheries around the world. This work aims to modernize the indicator of the status of marine resources increasing the capacity of national and regional fisheries institutions to assess the state of stocks, using innovative tools, digitalization and virtual platforms. The approach to assess threats to inland fisheries at the basin scale is promoted by FAO and its partners, using reliable and simple data collection protocols to track globally important inland fisheries, privileging participatory and integrated assessments and involving local groups and Indigenous Peoples with traditional knowledge. This approach can help prioritize interventions for management, conservation and ecosystem restoration.

By organizing global events and publishing authoritative overviews and updates, FAO disseminates and promotes technological advances and innovations in sustainable fisheries, covering fishing gears, vessels, on-board equipment for handling and preserving the harvest, safety at sea, energy efficiency, and collection and dissemination of catch and landing data.

Likewise, FAO collaborates with partners and stakeholders on the standardization and harmonization of statistical and operational systems to ensure that fisheries and aquaculture data meet quality requirements. The Coordinating Working Party on fishery statistics is developing a statistical standard on how

to integrate indicators derived from vessels transmitting (big) data such as Automatic Identification Systems into fisheries monitoring and management.

INNOVATIONS IN SUSTAINABLE TRADE AND VALUE CHAINS

To upgrade aquatic food value chains and guarantee their social, economic and environmental sustainability, FAO supports Members to comply with trade agreements and market access requirements. Implementing fisheries management systems and combating illegal, unreported and unregulated fishing are essential for ensuring that countries comply with the World Trade Organization Agreement on Fisheries Subsidies, particularly the provisions prohibiting subsidies linked to overfished stocks and IUU fishing operations.

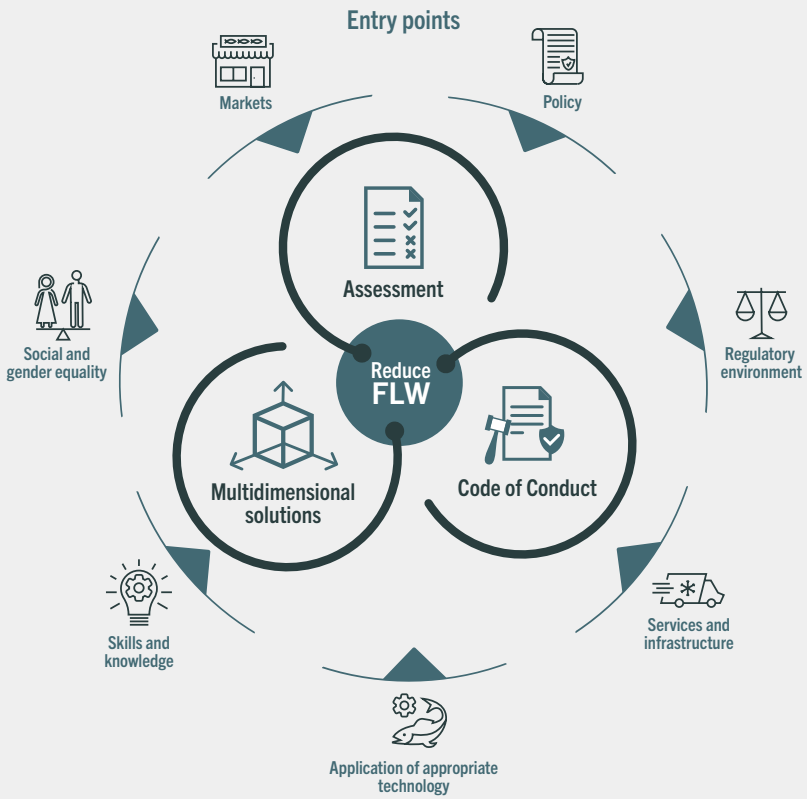
Following several multistakeholder worldwide consultations, with participation by industry, government, UN agencies and other stakeholders, FAO is developing global guidance on social responsibility in fisheries and aquaculture value chains to address issues of gender equality, decent work and occupational safety.

Most aquatic value chains still lack reliable traceability to support fully product quality, safety, legality and sustainability. The FAO guidance document on end-to-end traceability in capture fisheries and aquaculture provides details on the identification of critical tracking events and key data elements across all supply chain steps, as well as their respective data sources. Food loss and waste (FLW) is a major global issue including for aquatic food systems, because aquatic products are prone to rapid spoilage and quality loss in the absence of adequate storage and preservation facilities, which is the case in many developing countries.

FAO promotes the multidimensional solutions (MDS) approach to reduce FLW in aquatic food systems. The approach is piloted in several developing countries, elaborating an MDS strategy for a particular location, fishery or fish species, based on a multistakeholder FLW platform involving a wide range of public and private stakeholders. Members are actively involved in strategy development and validation as well as in monitoring and implementation, covering policy and legislation, capacity development, and technological and socioeconomic aspects (Figure 58).

Aquatic food consumption brings undisputed benefits, but these are accompanied by risks. Dioxins, dioxin-like polychlorinated biphenyls and methylmercury are of concern for the food safety of aquatic products. Two expert consultations on the risks and benefits of consumption of aquatic foods in relation to these chemicals were held by FAO and the World Health Organization. Conclusions from the 2023 expert consultation point clearly to the important health and nutrition

FIGURE 58 FISH LOSS AND WASTE MULTIDIMENSIONAL SOLUTIONS STRATEGY PROCESS



NOTES: FLW – food loss and waste. Addressing FLW in aquatic food value chains requires a multistakeholder approach focused on a combination of some or all of the entry points.

SOURCE: Authors' own elaboration.

benefits of aquatic foods, with compelling evidence for the benefits of consuming whole fish during all life stages. The consultation's report presents detailed conclusions, identifies research needs and data gaps, and recommends steps that Members should take to better assess and manage the national risks and benefits of consumption of aquatic foods. ■

PART 3
OUTLOOK AND CONTEMPORARY ISSUES

AQUATIC FOODS: AN UNTAPPED POTENTIAL FOR HEALTHY DIETS

Aquatic foods are considered among the healthiest foods and their consumption is linked to improved public health outcomes.

Consumption of whole fish provides important essential nutrients – in particular omega-3 fatty acids, minerals and vitamins – and is relatively affordable, ensuring low-income populations have access to nutritious foods. During processing, many parts considered not edible are often discarded, for example, the head, bones, skin, scales and trimmings, representing 30–70 percent of the whole fish weight. These parts are rich in micronutrients and the adoption of simple low-cost technologies such as drying, smoking, fermentation and milling can transform them into affordable and nutritious products. FAO supports home-grown school feeding programmes to produce aquatic foods using underutilized locally produced small fish or fish powders made from fisheries by-products. For example, the use in school feeding programmes of dried fish powder produced from tuna frames in Ghana and fish cake from whole tilapia in Guatemala were highly acceptable. The use of the whole fish improves the level of micronutrients in the meal, reduces the cost per meal, and lessens the environmental impact.

Promoting consumption of aquatic foods and increasing public awareness of their nutritional and health benefits remain a significant challenge in the absence of up-to-date and accurate composition data on aquatic foods. To address this gap, FAO has prepared a global nutrient conversion table for application to the FAO Supply Utilization Accounts, based on national or regional food composition data. The global table provides data required to generate statistics on aquatic

foods for energy, macronutrients, micronutrients, and polyunsaturated and omega-3 fatty acids. A three-year FAO-led project is updating the International Network of Food Data Systems to expand information on the nutrient composition of small fish species, processed fish and algae.

THE KEY ROLE OF AQUATIC FOODS IN CLIMATE ACTION

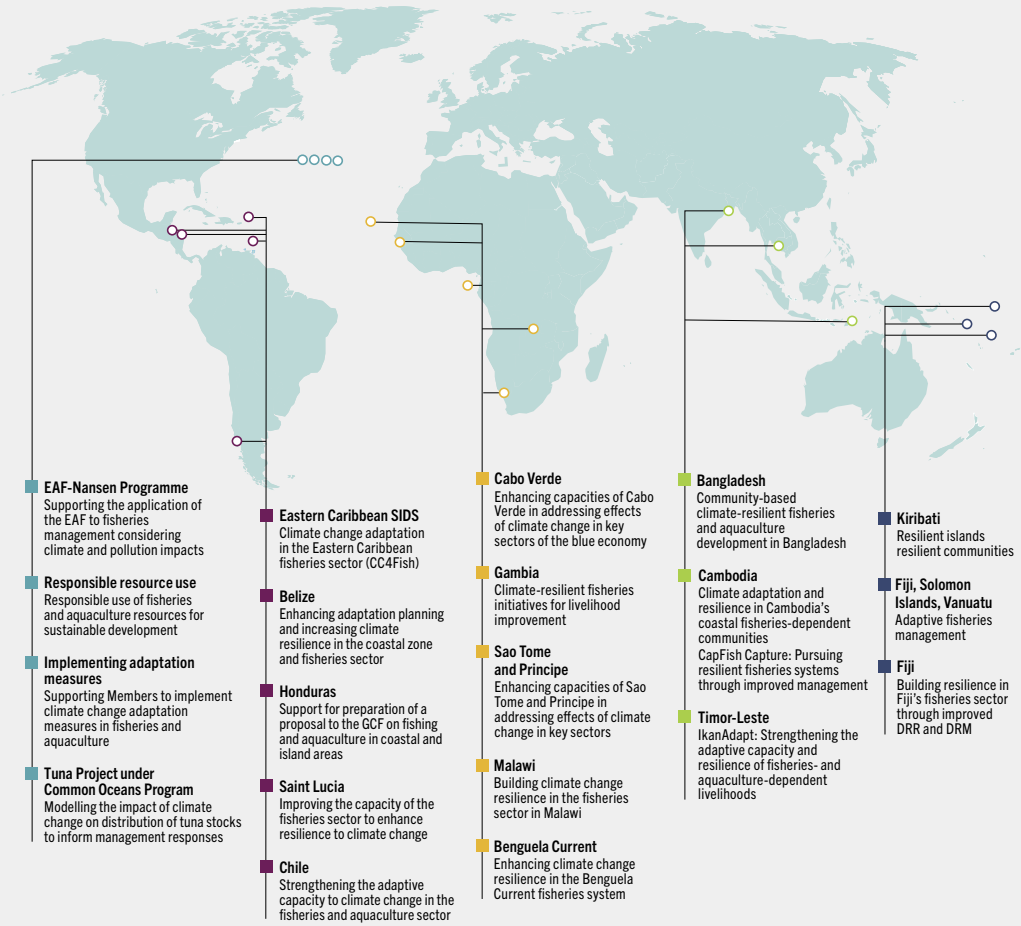
The importance of fisheries and aquaculture is increasingly recognized in global fora, underlying the potential of aquatic food systems to provide solutions for sustaining food security, economic development and environmental protection. Policies in recent years have focused on the nexus between climate change, aquatic ecosystems and food production within the United Nations Framework Convention on Climate Change (UNFCCC). The 2023 UNFCCC Ocean Dialogue recognized the significant potential of aquatic foods for providing critical climate solutions and the importance of integrating them into both national and multilateral climate action-related processes. The FAO field programmes implementing climate change adaptation solutions for aquatic food systems support highly vulnerable coastal and riparian communities to reduce vulnerability, boost resilience, improve management and technology, and diversify local food systems and livelihoods. Furthermore, they integrate traditional knowledge for adapting to climate change in specific areas, offer key insights into local species most suited to adapt to evolving conditions, and engage stakeholders including youth, women and Indigenous Peoples (Figure 61). Ensuring access to climate finance for the aquatic food sector is challenging – especially for small-scale producers, who lack awareness of funding possibilities and the know-how to access them. FAO has developed climate finance training materials and guidance to help governments and other stakeholders assess climate risks, build climate rationale, develop adaptation actions, and formulate adaptation finance proposals. While the ocean has been a primary entry point for the aquatic food sector's engagement under the UNFCCC, FAO is working to encompass food production from freshwater systems and give due consideration to aquaculture.

IMPACTS OF EL NIÑO ON MARINE FISHERIES AND AQUACULTURE

The El Niño Southern Oscillation (ENSO) is a natural climate phenomenon that periodically causes Pacific Ocean warming (El Niño) and cooling (La Niña) and influences air surface temperature and precipitation patterns around the globe. El Niño events cause natural ocean conditions to alter due to changes in sea surface temperature and upwelling, affecting food availability and suitability of habitats for fish and other marine species.

El Niño events have been linked to declines in fish catch from a variety of fisheries such as those in the North »

FIGURE 61 EXAMPLES OF FAO FIELD PROJECTS AND PROGRAMMES ON CLIMATE CHANGE ADAPTATION FOR THE AQUATIC FOOD SECTOR



NOTES: DRM – disaster risk management; DRR – disaster risk reduction; EAF – ecosystem approach to fisheries; GCF – Green Climate Fund; SIDS – Small Island Developing States. Projects and programmes were implemented with financial support from the Green Climate Fund, the Global Environment Facility, and the Norwegian Agency for Development Cooperation in collaboration with partners (e.g. WorldFish, South Pacific Commission).

SOURCE: Authors' own elaboration.

» Pacific and the East China Sea, as well as those of highly migratory species like tuna, and of Peruvian anchoveta in the Eastern Pacific. They affect aquaculture infrastructure and cultured organisms; for example, increases in temperature and salinity associated with dry conditions resulting from El Niño events can strongly affect the growth and survival of seaweed farmed in the Philippines, where this industry supports around 200 000 family farms.

According to FAO's retrospective analysis (1950 to 2023), strong to extraordinary El Niño events affected marine fisheries in 11 of the 19 marine FAO Major Fishing Areas. Impacts differ across geographical areas, target species, and types of fishing or aquaculture, and may be both negative and positive. For example, 2023 El Niño conditions diminished the habitat and food availability of Peruvian anchoveta, leading to a 50 percent reduction in landings compared with 2022, impacting not only local livelihoods and national export revenues, but also aquaculture globally because Peruvian anchoveta is a major source of fishmeal and fish oil. On the other hand, the 2023–2024 El Niño had a positive impact on skipjack fishing and catchability of yellowfin tuna in the exclusive economic zones of the Pacific Island Countries and Territories.

Climate models project more frequent extreme ENSO events due to global warming. It is therefore vital to implement adaptive fisheries management measures such as dynamic adjustment of the fishing season and limiting access to fishing grounds based on near real-time monitoring. In addition, disaster preparedness and response at local and national levels – while promoting the diversification of livelihoods – are of crucial importance.

FISHERIES AND AQUACULTURE IN THE CONTEXT OF GLOBAL BIODIVERSITY AGREEMENTS

Integration of fisheries and aquaculture in multilateral environmental agreements is crucial for sustainability. The Convention on Biological Diversity (CBD) is a multilateral treaty to conserve biodiversity while ensuring sustainable and fair use of its components and equitable sharing of the benefits arising from genetic resources. Under the CBD's 2050 vision of "Living in harmony with nature", the fifteenth meeting of the Conference of Parties adopted the landmark Kunming-Montreal Global Biodiversity Framework in 2022 to be used by countries to develop National Biodiversity Strategies and Action Plans. Aquatic food systems are directly related to many framework targets such as management of aquatic spaces; reduction of species extinction risk; sustainability of use and trade of wild aquatic species; and actions to deter and mitigate the impacts of invasive alien species. Other targets seek to strengthen management of production systems and ensure the fair and equitable sharing of benefits that arise from use of biodiversity. FAO is working across

stakeholder groups to identify the opportunities and meet the challenges for the timely achievement of the framework targets related to aquatic food systems. Collation and documentation of the sector's priorities will help identify the investment needed for transitioning fisheries and aquaculture policies and practices.

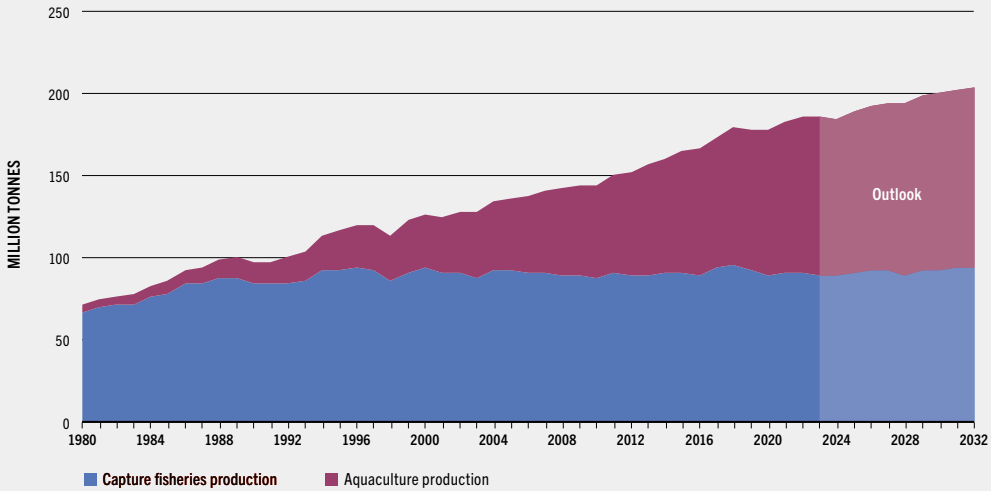
In 2023, UN Member States agreed to an international legally binding instrument under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (the BBNJ Agreement). The agreement covers 64 percent of the total ocean surface area and around half the surface area of the planet. It tackles threats such as climate change and resource overexploitation, and promotes coordination between relevant bodies, including regional fishery bodies. The agreement represents an opportunity to build on existing policy instruments and processes across marine economic sectors.

To address plastic pollution, the United Nations Environment Programme-led Intergovernmental Negotiating Committee is developing an international legally binding instrument on plastic pollution, including in the marine environment. FAO is actively participating in the consultations, providing technical advice on fisheries and aquaculture.

FISHERIES AND AQUACULTURE PROJECTIONS, 2022–2032

The FAO outlook for fisheries and aquaculture foresees an increase in world production, apparent consumption and trade for the period up to 2032, although at slower rates compared with previous decades. World production of aquatic animals is projected to reach 205 million tonnes (live weight equivalent) in 2032, 111 million tonnes from aquaculture and 94 million tonnes from capture fisheries, increasing respectively by 17 percent and 3 percent (Figure 64). As a result, aquaculture will account for 54 percent of the total production of aquatic animals and 60 percent of total aquatic food for human consumption, estimated at 184 million tonnes or 90 percent of the total production. Apparent consumption of aquatic animal foods will increase by 12 percent to supply on average 21.3 kg per capita in 2032, driven mostly by rising incomes and urbanization, and improvements in post-harvest practices, distribution and dietary trends. Unfortunately, per capita apparent consumption in Africa will continue to decrease. This is most alarming for sub-Saharan Africa where many countries are dependent on aquatic foods to meet their nutritional needs, particularly animal proteins and micronutrients. Exports of aquatic products will continue to grow but will represent only 34 percent of total production in 2032, compared with 38 percent in 2022. Prices are expected to continue to decline slightly in both »

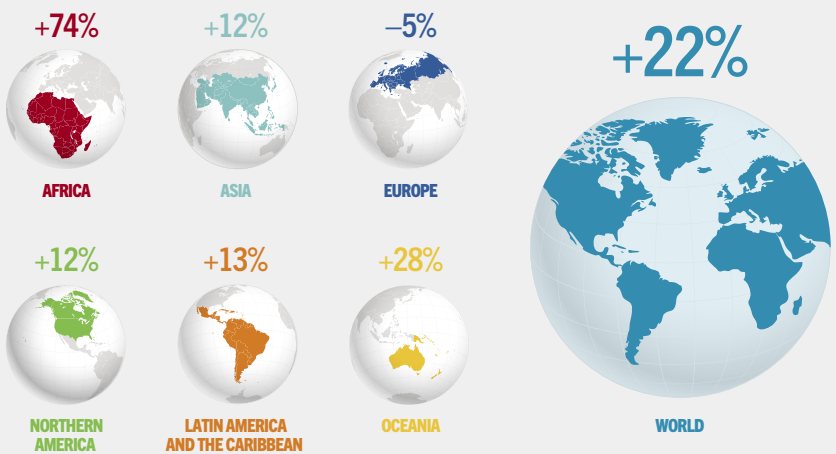
FIGURE 64 WORLD FISHERIES AND AQUACULTURE PRODUCTION OF AQUATIC ANIMALS, 1980–2032



NOTES: Aquatic animals excluding aquatic mammals, crocodiles, alligators, caimans, aquatic products (corals, pearls, shells and sponges) and algae. Data expressed in live weight equivalent.

SOURCE: FAO estimates.

FIGURE IN BOX 48 REQUIRED GROWTH IN AQUATIC ANIMAL FOOD SUPPLY TO SUSTAIN 2022 PER CAPITA CONSUMPTION LEVELS THROUGH TO 2050



SOURCE: FAO estimates.

» nominal and real terms until 2025–2027, before increasing again. Overall, from 2022 to 2032, fish prices are expected to grow moderately in nominal terms but to decline in real terms.

The world population is projected to reach 9.7 billion by 2050, up by 1.7 billion compared with 2022. This will have significant implications for the supply and demand of aquatic animal foods. To maintain through to 2050 apparent consumption of aquatic animal foods at the 2022 estimated level of 20.7 kg per capita would require an increase in the total aquatic animal food supply of 36 million tonnes (live weight equivalent), representing a 22 percent rise (Figure in Box 48), highlighting the need to achieve Blue Transformation with a world where aquatic foods play a more significant role in ending hunger and poverty. ■

THE STATE OF THE WORLD

2024
THE STATE OF WORLD FISHERIES AND AQUACULTURE

BLUE TRANSFORMATION IN ACTION

The 2024 edition of *The State of World Fisheries and Aquaculture* features the Blue Transformation in action, illustrated by activities and initiatives, led by FAO in collaboration with Members, partners and key stakeholders, to integrate aquatic foods into global food security and sustainability, enhance policy advocacy, scientific research and capacity building, disseminate sustainable practices and technological innovations, and support community involvement.

Part 1 of this edition of *The State of World Fisheries and Aquaculture* benefits from significant improvements in data collection, analytical and assessment tools and methodologies to present the most up-to-date review of world fisheries and aquaculture production and utilization. Part 2 highlights the role of FAO and its partners to catalyse the transformational changes required to support aquaculture expansion and intensification, effective management of global fisheries and upgrading of aquatic value chains. Part 3 covers the high-impact challenges and opportunities of the untapped potential of utilizing whole fish and by-products to improve food security and nutrition, expounds on the role of aquatic food systems in providing critical climate, biodiversity and environmentally sound solutions, and highlights the importance of their integration into national and multilateral processes. It also presents an outlook on future trends up to 2032 based on projections.

The State of World Fisheries and Aquaculture 2024 provides the most up-to-date and evidence-based information, supporting policy, scientific and technical insights on challenges, opportunities and innovations shaping the present and future of the sector, for the benefit of a wide and expanding audience of policymakers, managers, scientists, fishers, farmers, traders, civil society activists and consumers.

The State of World Fisheries and Aquaculture 2024 (full text)

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