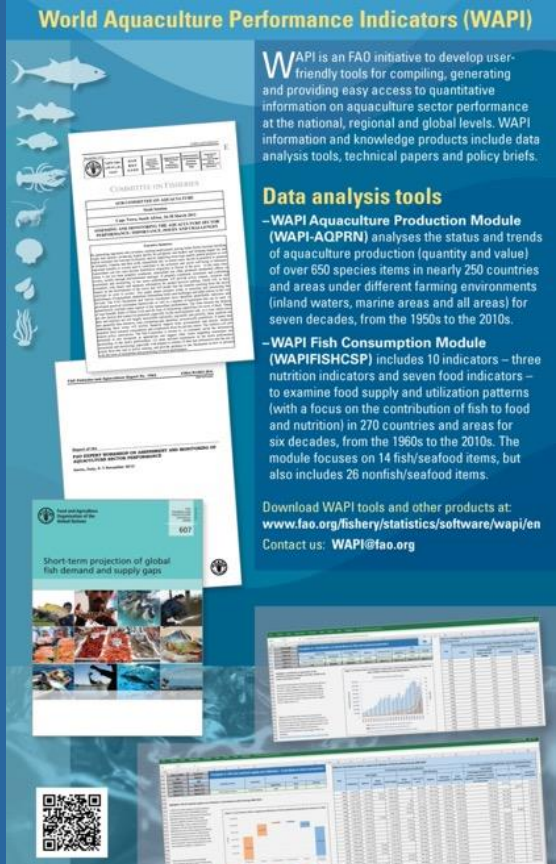
Food and Agriculture Organization of the United Nations

Aquaculture growth potential in Indonesia

WAPI factsheet to facilitate evidence-based policy-making and sector management in aquaculture

February 2024



Preparation of this factsheet

- This factsheet provides data and information to facilitate the assessment of aquaculture growth potential in Indonesia. It relies on official data and statistics readily available to the public. The factsheet is not a comprehensive, tailor-made sector assessment report. Some important dimensions, such as aquaculture's contribution to GDP and employment, are not evaluated due to the lack of global data. While most analyses in the factsheet are straightforward, there are some advanced analyses (e.g. aquaculture growth potential from demand-side perspective) based on certain (sometimes simplified) assumptions, which provide useful indications but do not cover all relevant aspects.
- Analyses in the factsheet are based on official data and statistics published by FAO and other international or national organizations. The data and statistics may differ from data and statistics used in other WAPI factsheets because of different data sources or different versions of the same datasets. They may not be consistent with data and statistics from other sources (e.g. national statistics).
- The term "country" used in this factsheet includes non-sovereign territory. The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.
- Unless noted otherwise, country grouping in this factsheet follows the United Nations M49 standard; under which Indonesia is listed in Asia and the subregion of South-eastern Asia.
- The preparation of the factsheet has benefited from tables and charts generated by various World Aquaculture Performance Indicator (WAPI) modules. Most of these data analysis tools are for FAO internal use, yet some of them are available for test use. See slide 77 or visit the WAPI webpage for more information about WAPI information and knowledge products.
- This factsheet on Indonesia is a derivative product stemming from the graduate-level course on "Sustainable Development Prospects in Global Fisheries and Aquaculture", offered by the Shanghai Ocean University (SHOU) with support from FAO. The factsheet was prepared by FAO officers Junning Cai and Xiaowei Zhou, along with SHOU PhD student Camara Fatoumata.
- The validity and relevance of the results depends on the quality (in terms of timeliness and accuracy) of the underlying data and statistics used in the analyses – see some remarks on data and statistics in Slide 3. Errors could also occur in the analyses despite our efforts to minimize them. Please let us know if you have any concern.
- Contact: Junning Cai (FAO Aquaculture Officer); junning.cai@fao.org; wapi@fao.org.

Remarks on FAO aquaculture statistical data – Indonesia

- FAO aquaculture statistics are based on data submitted by member countries. When there is a lack of data formally reported by a country, FAO usually estimates the country's aquaculture production based on data and information from alternative sources or relies on relatively conservative estimation methods when alternative data sources are not readily available.
- Many countries lack a national statistics system for collection of aquaculture production data on a regular basis for dissemination and for reporting to FAO. In Asia , only 25 countries or territories reported aquaculture production data to FAO in all the five years during 2013–2017, yet Indonesia was not one of them.
- A robust national system of aquaculture data collection is first and foremost for the countries' own benefit. Generally speaking from a global perspective, there is an urgent need for national capacity development in aquaculture statistics system at several levels, including (i) the legal status, institutionalization and resource allocation; (ii) development of national statistical standards in line with international standards; (iii) adequate and stable staffing plus an effective mechanism for data collection, compilation, storage, dissemination and reporting.
- For further information about FAO statistics on aquaculture production, contact: Xiaowei Zhou (FAO Aquaculture Officer (Statistics); Xiaowei.Zhou@fao.org).

Species grouping

In this factsheet, "fish" or "seafood" may be used interchangeably as a general term for narrative convenience. When it is necessary to define the scope of a species group for a specific quantitative measure, the following definitions are used.

- Aquatic organisms; aquatic species; aquatic foods; aquatic products; or aquatic commodities = fish & seafood + miscellaneous aquatic animal products + aquatic plants (or algae)*
- Fish & seafood = finfish + shellfish + miscellaneous aquatic animals
- Finfish = marine fishes + diadromous fishes + freshwater fishes
- Shellfish = crustaceans + molluscs
- Molluscs = shell molluscs (i.e. molluscs excluding cephalopods) + cephalopods

*Aquatic plants is one of the ISSCAAP Divisions; ISSCAAP = International Standard Statistical Classification of Aquatic Animals and Plants. In FAO global fisheries and aquaculture production statistics, aquatic plants are virtually equal to algae, with only a few sporadic historical data (before the early 2010s) on the harvest of wild seagrass.

Contents

Highlights (I)

Status and trends

- Aquaculture production in Indonesia increased from 993 727 tonnes in 2000 to 14 606 534 tonnes in 2021. The 13.65 percent annual growth was higher than subregional, regional and world averages. It was one of the five countries in the subregion with a double-digit annual aquaculture growth during the period (slide 61).
- While inland fisheries contributed 6.5 percent of Indonesia's capture fisheries production in 2021 (slide 55), inland aquaculture accounted for 25 percent of its aquaculture production (slide 64). Aquatic plants accounted for 62.2 percent of Indonesia's 14 606 534 tonnes of aquaculture production in 2021, followed by freshwater fishes (25.2 percent) (slide 66). Indonesia's 14 606 534 tonnes of aquaculture production in 2021 was contributed by 116 ASFIS species items, with only 6.7 effective number of species (ENS; a measure of species diversity). Red seaweeds accounted for more than half of the production, followed by tilapias, catfishes, marine shrimps and prawns, milkfish, and carps (slides 67).

Supply-side perspective

- Indonesia's 11.59 percent share of world aquaculture production tonnage in 2021 was greater than its 3.46 percent share in world population and its 1.43 percent share in world land area. The country's 6.48 percent share in world inland aquaculture production was greater than its 1.12 percent share in world surface area of inland waterbodies and its 3.69 percent share in world renewable water resources. Its 15.71 percent of global marine/coastal aquaculture production was greater than its 6.79 percent share of world coastline length (slides 9-10; slide 75).
- Indonesia's total fisheries production increased from 245 000 tonnes in 1950 to 21 813 413 tonnes in 2021. The growth since the mid-2000s was primarily thanks to the expansion of aquaculture production (slide 49). Aquaculture production in Indonesia increased from 600 thousand tonnes in 1990 to 14 607 thousand tonnes in 2021; the share of aquaculture in total fisheries production increased from 18.5 percent to 67 percent (slide 62).
- In 2019, Indonesia's food fish supply primarily came from domestic production, while import contributed only 1.1 percent (slide 23). Indonesia's import of aquatic products increased from USD 101.644 million in 2000 to USD 467.186 million in 2021;the 7.53 percent annual growth was higher than regional and world averages yet lower than the subregional average (slide 42).

Highlights (II)

Demand-side perspective

- Indonesia is an upper-middle income country with an increasingly urbanized economy and a growing population (slides 9-12; slides 72-73). The life expectancy at birth of its population was lower than sub-regional, regional, and world averages (slide 17). In addition, the prevalence of undernourishment in the country's population was higher than the subregional average, and the percentages of child stunting and overweight children were higher than sub-regional, regional, and world averages. The prevalence of obesity in the country's adult population was slightly higher than the subregional average, while its women anaemia was higher than subregional and world averages (slide 14).
- Indonesia's per capita total protein intake in 2020 was lower than sub-regional and world averages (slide 16), so was its animal protein intake (slide 20). The share of fish & seafood in its animal protein intake (49.4 percent) was higher than both subregional and world averages (slide 20).
- Between 1999 and 2019, per capita fish & seafood consumption in Indonesia increased from 19.4 kg to 45.1 kg. The 4.3 percent annual growth was greater than subregional, regional, and world averages. The country's per capita fish & seafood consumption in 2019 was the 3rd highest in South-eastern Asia and ranked #3 among the top 10 aquaculture countries (slide 26). Indonesia's 193.1 seafood liking index (SLI) in the 2010s indicates that its preference for fish & seafood was nearly twice of the world average. The SLI, which was the 5th highest in South-eastern Asia, was also above the Developing Regions average (103.3) and the Asia average (119.7), yet it was lower than the South-eastern Asia average (208.1). The country's SLIs for most aquatic foods were above world averages, except for shell molluscs and miscellaneous aquatic animals (slide 29).
- In 2019, 8.6 percent of Indonesia's food fish supply from domestic sources went to net export (slide 22). In 2021, Indonesia was the 2nd largest aquatic exporting country in South-eastern Asia. The country's export of aquatic products increased from USD 1.609 billion in 2000 to USD 5.527 billion in 2021, the 6.05 percent annual growth rate was higher than subregional, regional, and world averages (slides 34-40).
- Indonesia's population is expected to increase from 271.858 million in 2020 to 292.15 million in 2030, which would need 914 889 tonnes more fish & seafood to maintain its per capita fish & seafood consumption at the baseline level (45.09 kg) (slide 74).
- Indonesia's aquaculture production of fish and seafood (excluding aquatic plants) increased from 4 342 465 tonnes in 2015 to 5 515 208 tonnes in 2021. Following this trend linearly, the country's aquaculture production would reach 7 072 281 tonnes in 2030. The 1 845 686 tonnes of extra supply compared to the baseline would be 930 797 tonnes more than the 914 889 tonnes of extra fish and seafood demand driven by population growth (slide 74).
- Using the 1 845 686 tonnes of trend aquaculture growth for domestic consumption could increase Indonesia's per capita fish and seafood consumption to 48.27 kg in 2030 (slide 74).

Resources

Indonesia (2021): 11.5892 percent of world aquaculture production; 3.461 percent of world population; an upper-middle income country (35.13 percent of world average GDP per capita).

Status of aquaculture production, population and GDP

Country/area	Aquaculture production (2021)[1]		Population (2021)[2]		GDP per capita (2021)[3]	
	Tonnes	Share of world total (%)	Million	Share of world total (%)	Current USD	Ratio to world average (%)
World	**126 035 297**	**100.00**	**7 909**	**100.000**	**12 351**	**100.00**
Developing Regions	120 573 065	95.67	6 623	83.737	6 096	49.35
Asia	115 269 861	91.46	4 695	59.355	8 105	65.62
South-eastern Asia	24 458 889	19.41	676	8.544	5 004	40.52
Countries in South-eastern Asia, ranked by aquaculture production in 2021						
1. Indonesia	***14 606 534***	***11.5892***	***274***	***3.461***	***4 339***	***35.13***
2. Viet Nam	4 749 274	3.7682	97	1.232	3 793	30.71
3. Philippines	2 272 528	1.8031	114	1.440	3 461	28.02
4. Thailand	989 898	0.7854	72	0.905	7 060	57.16
5. Myanmar	929 217	0.7373	54	0.680	1 211	9.81
6. Malaysia	416 978	0.3308	33.6	0.424	11 111	89.96
7. Cambodia	348 350	0.2764	17	0.210	1 603	12.98
8. Lao People's Democratic Republic	135 008	0.1071	7	0.094	2 496	20.21
9. Singapore	5 244	0.0042	5.9	0.075	71 334	577.54
10. Brunei Darussalam	4 768	0.0038	0.4	0.006	31 457	254.68
11. Timor-Leste	1 091	0.0009	1.3	0.017	2 740	22.19

Data sources: 1. FAO Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ). 2. UN World Population Prospects (2022 Revision). 3. Total GDP from IMF World Economic Outlook Database (April 2023) divided by population from UN World Population Prospects (2022 Revision).

Notes: Country grouping based on UN-OHRLLS and UN M49 standard.

Natural resources of Indonesia: 1.43 percent of world land area (including inland water surface area); 1.12 percent of world inland water surface area; 6.79 percent of world coastline length; 3.69 percent of world total renewable water resources.

Land and water resources

Country/area	Total country area (excluding coastal waters; 2020)[1]		Surface area of inland waterbodies (2020)[2]		Coastline length (2019)[3]		Total renewable water resources (2020)[1]	
	km^2	Share of world total (%)	km^2	Share of world total (%)	km	Share of world total (%)	Billion m^3/year	Share of world total (%)
World	**133 780 390**	**100.00**	**3 494 970**	**100.00**	**805 942**	**100.00**	**54 737**	**100.00**
Developing Regions	82 598 979	61.74	1 406 180	40.23	290 474	36.04	39 727	72.58
Asia	31 965 369	23.89	772 188	22.09	186 507	23.14	14 442	26.38
South-eastern Asia	4 507 810	3.37	86 694	2.48	103 846	12.89	6 395	11.68
Countries in South-eastern Asia, ranked by aquaculture production in 2021								
1. Indonesia	***1 916 862***	***1.43***	***39 195***	***1.12***	***54 716***	***6.79***	***2 019***	***3.69***
2. Viet Nam	331 230	0.25	7 651	0.22	3 444	0.43	884	1.62
3. Philippines	300 000	0.22	8 524	0.24	36 289	4.50	479	0.88
4. Thailand	513 120	0.38	8 861	0.25	3 219	0.40	439	0.80
5. Myanmar	676 590	0.51	10 358	0.30			1 168	2.13
6. Malaysia	330 800	0.25	5 227	0.15	4 675	0.58	580	1.06
7. Cambodia	181 040	0.14	4 337	0.12	443	0.06	476	0.87
8. Lao People's Democratic Republic	236 800	0.18	2 275	0.07	0	-	334	0.61
9. Singapore	728	0.00	50	0.00	193	0.02	1	0.00
10. Brunei Darussalam	5 770	0.00	85	0.00	161	0.02	9	0.02
11. Timor-Leste	14 870	0.01	132	0.00	706	0.09	8	0.02

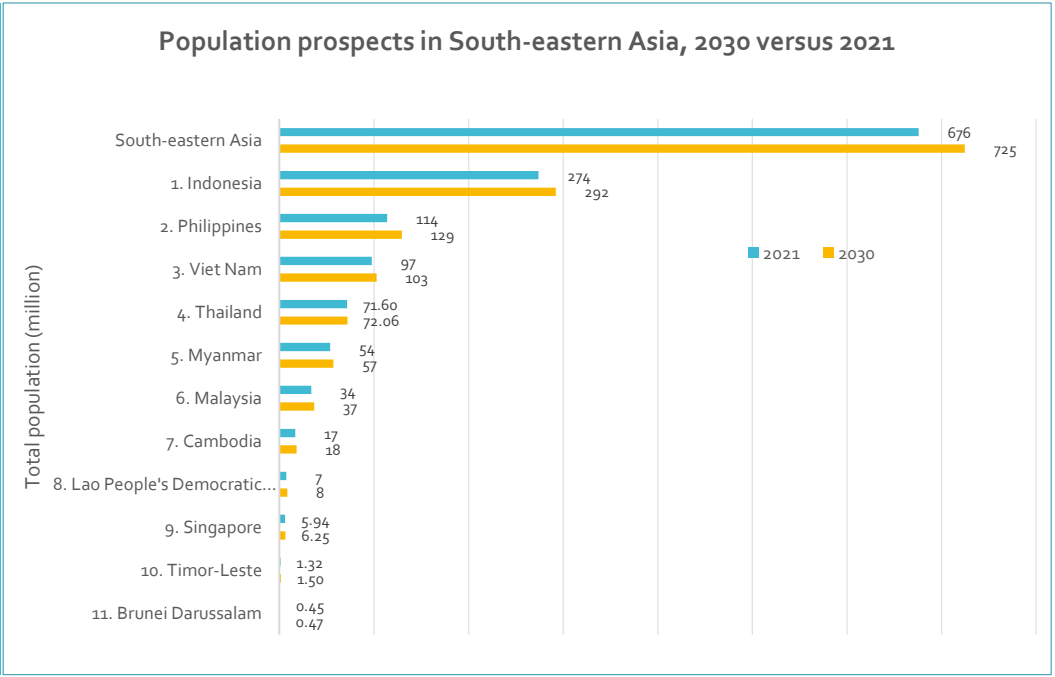
Data sources: 1. FAO AQUASTAT main country database (November 2020; downloaded on 29 April, 2023). 2. FAOSTAT Land Cover database (CCI_LC; updated on 15 July, 2022; downloaded on April 29, 2023). 3. The World Factbook, Central Intelligence Agency (CIA), United States of America. Web accessed on 20 May 2019. Coastline length of world equal to the sum of coastline length of 265 countries and territories listed in the data source.

Notes: Country grouping based on UN-OHRLLS and UN M49 standard.

Population prospects in Indonesia (2030 versus 2021):

Indonesia is the most populous country in South-eastern Asia

Its population is expected to increase from 274 million in 2021 to 292 million in 2030.



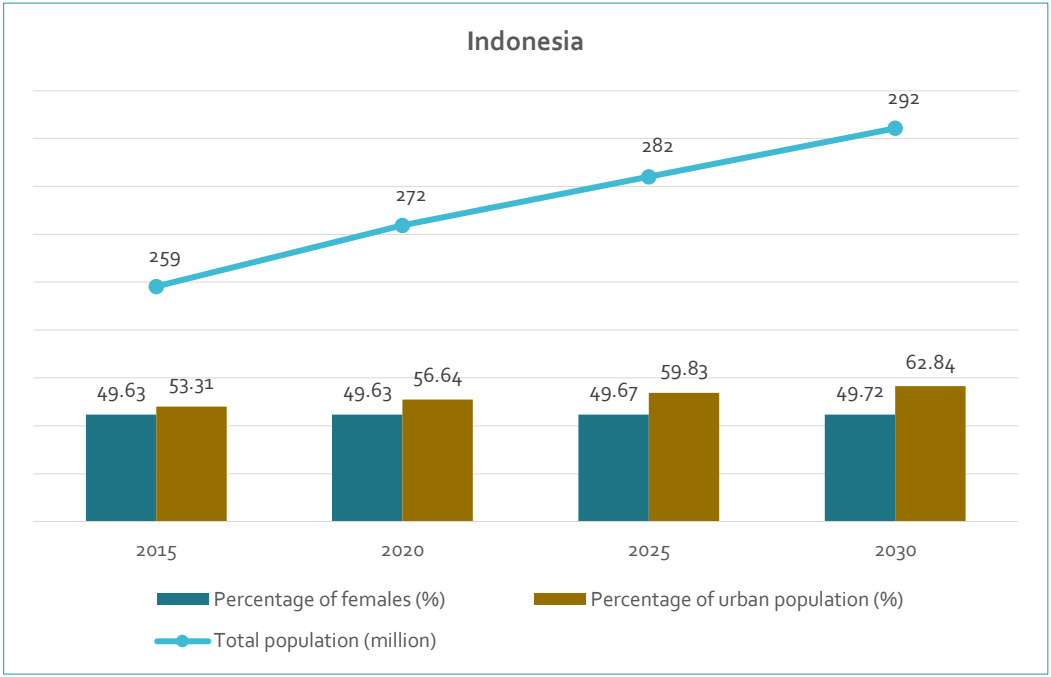
Data source: United Nations World Population Prospects (2022 revision)
https://esa.un.org/unpd/wpp/Download/Standard/Population

Demographic features in Indonesia (2015–2030):

Population expected to increase from 259 million in 2015 to 292 million in 2030.

Urban ratio of total population expected to grow beyond 60 percent in 2030.

Female ratio in total population is expected to increase slightly yet remain below 50 percent.



Data source: United Nations World Population Prospects (2022 revision) https://esa.un.org/unpd/wpp/Download/Standard/Population; United Nations World Urbanization Prospects (2018 revision) https://population.un.org/wup.

Food security, nutrition and health

Food security and nutrition status in Indonesia

Prevalence of undernourishment
6.5 percent of prevalence of undernourishment, which was higher than the subregional average, yet lower than regional and world averages.

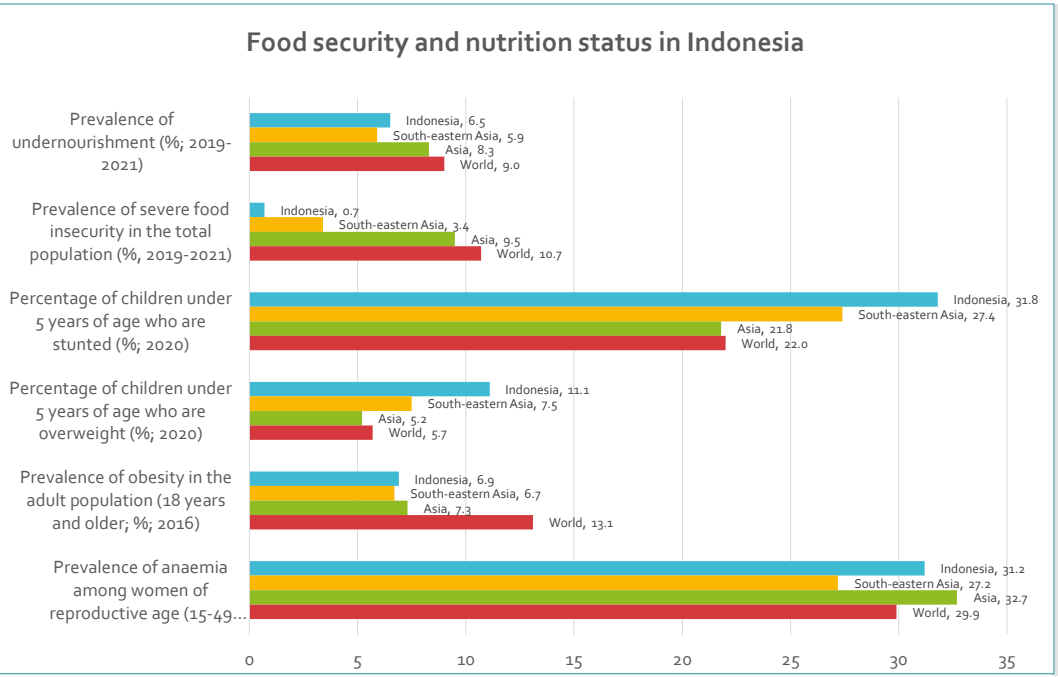
Prevalence of severe food insecurity
0.7 percent of prevalence of severe food insecurity, which was lower than subregional, regional and world averages.

Stunted children
31.8 percent of children under 5 years of age were stunted , which was higher than subregional, regional, and world averages.

Overweight children
11.1 percent of children under 5 years of age were overweight, which was higher than subregional, regional, and world averages.

Adult obesity
6.9 percent of adult population were obese, which was higher than the subregional average, yet lower than regional and world averages.

Women anaemia
31.2 percent of reproductive-age women were anaemic, which was higher than subregional and world averages.



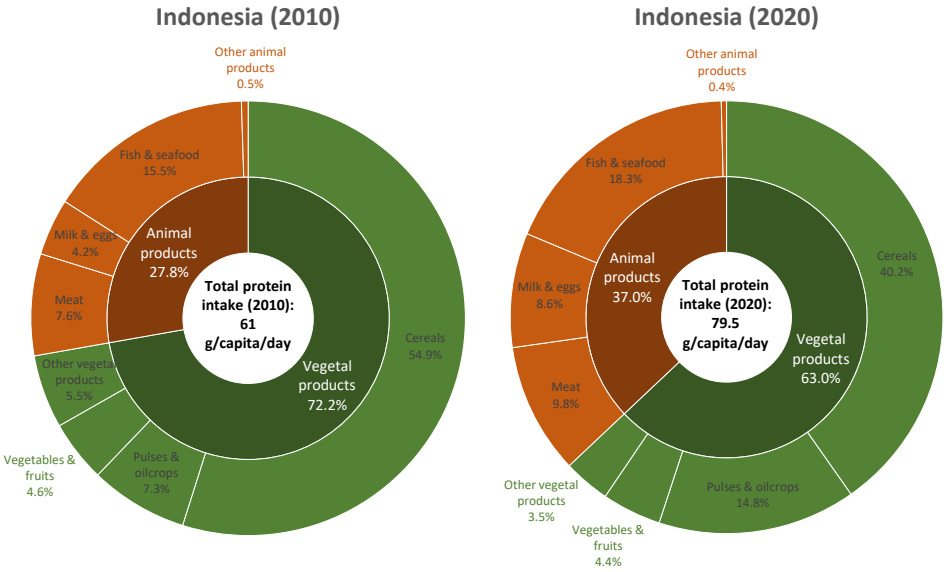
Data source: FAOSTAT – Suite of Food Security Indicators (updated on 7 November, 2022). www.fao.org/faostat/en/#data/FS

Per capita protein intake in Indonesia (2010 versus 2020):

Per capita total protein intake increased from 61 g/day to 79.5 g/day between 2010 and 2020.

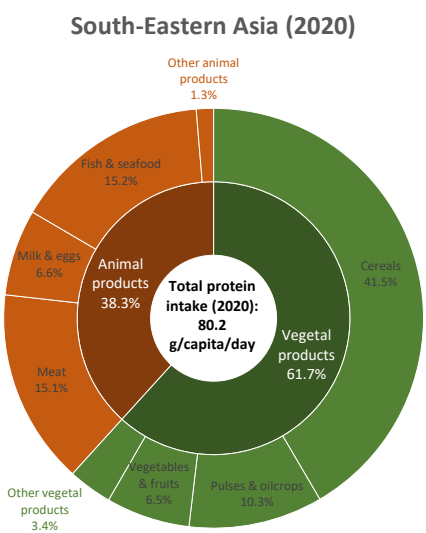
The share of animal protein in total protein intake increased from 27.8 percent to 37 percent.

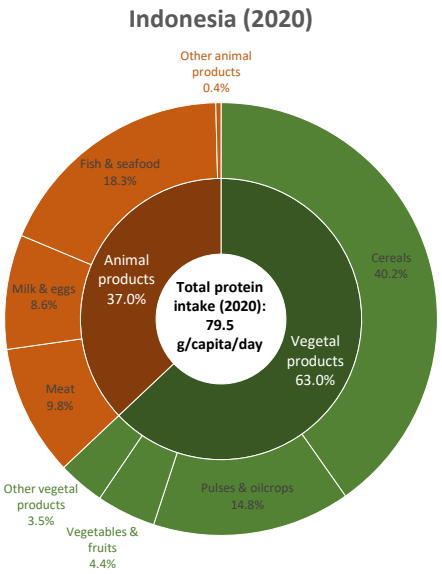
The share of fish & seafood increased from 15.5 percent to 18.3 percent.

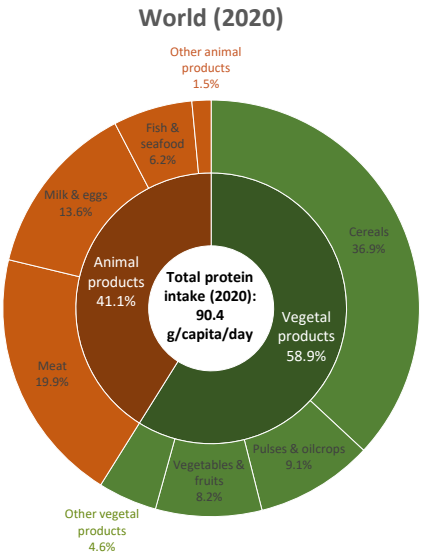


Data source: FAOSTAT New Food Balances (updated on 27 October, 2023; http://www.fao.org/faostat/en/#data/FBS).
Notes: See slide #4 for the scope of fish & seafood. Food items with a small contribution to total protein intake may not be labelled.

Per capita protein intake in Indonesia (2020): The 79.5 g/day of per capita protein intake was lower than both subregional average (80.2 g/day) and world average (90.4 g/day). So was the share of animal proteins in the country's total protein intake. Yet the share of fish & seafood was higher than both subregional and world averages.





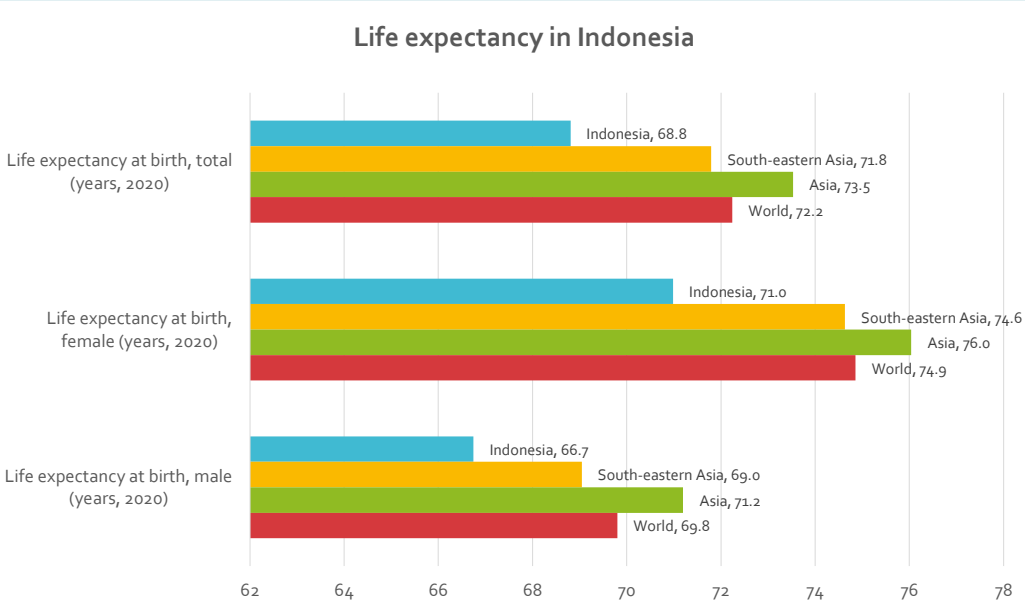


Data source: FAOSTAT New Food Balances (updated on 27 October, 2023; http://www.fao.org/faostat/en/#data/FBS).
Notes: See slide #4 for the scope of fish & seafood. Food items with a small contribution to total protein intake may not be labelled.

Life expectancy in Indonesia (2020):

Life expectancy at birth for the total population was 68.8 years, which was lower than subregional, regional, and world averages.

Life expectancy for female population (71 years) was higher than male population (66.7 years) – a general pattern applying to most countries and areas.



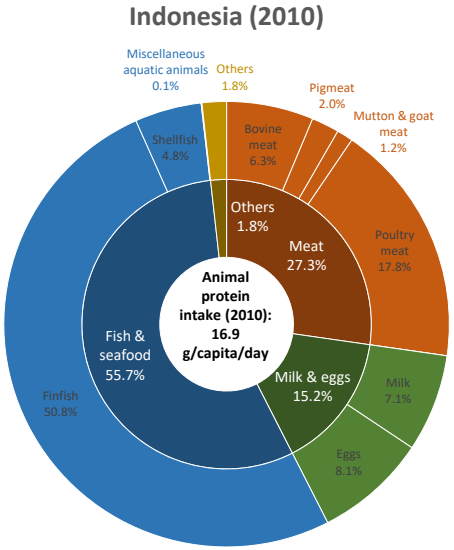
Data source: World Bank World Development Indicators (WDI), downloaded on 25 January, 2023 (http://datatopics.worldbank.org/world-development-indicators/#archives); United Nations World Population Prospects (2022 revision; https://esa.un.org/unpd/wpp/Download/Standard/Population) used to calculate life expectancy at the regional level.

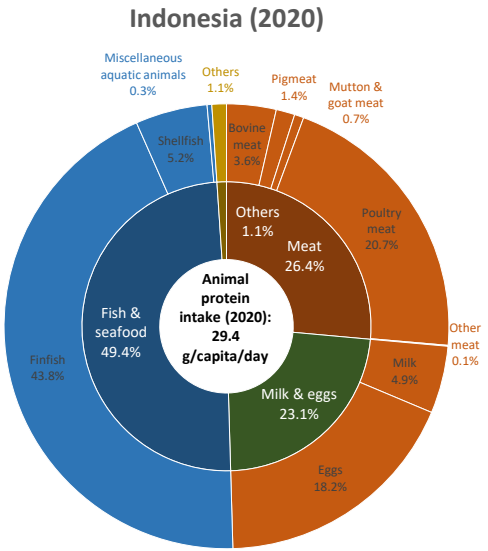
Contribution to food and nutrition

Animal protein intake in Indonesia (2010 versus 2020):

Per capita animal protein intake increased from 16.9 g/day in 2010 to 29.4 g/day in 2020.

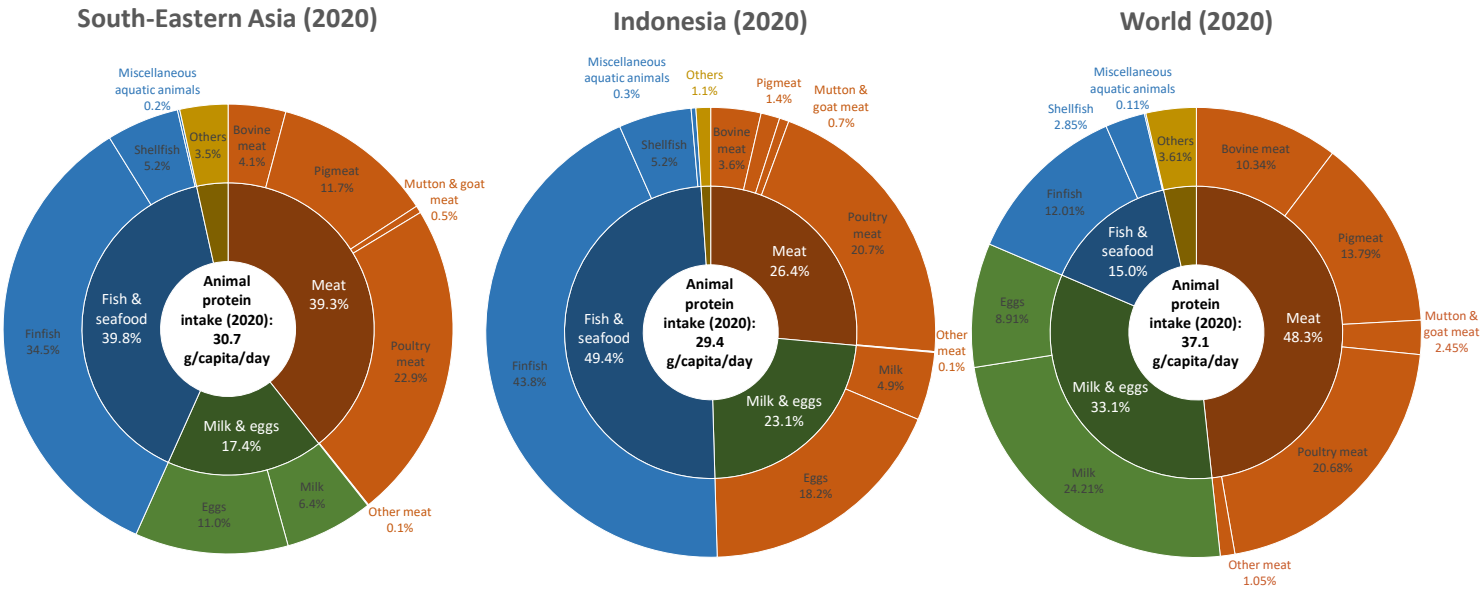
The share of fish & seafood in animal protein intake declined from 55.7 percent to 49.4 percent.





Data source: FAOSTAT New Food Balances (updated on 27 October, 2023; http://www.fao.org/faostat/en/#data/FBS).
Note: See slide #4 for the scope of fish & seafood. Food items with a small contribution to animal protein may not be labelled.

Animal protein intake in Indonesia (2020): The 29.4 g/day of per capita animal protein intake was lower than both subregional and world averages, while the 49.4 percent fish share in the country's animal protein intake was higher.

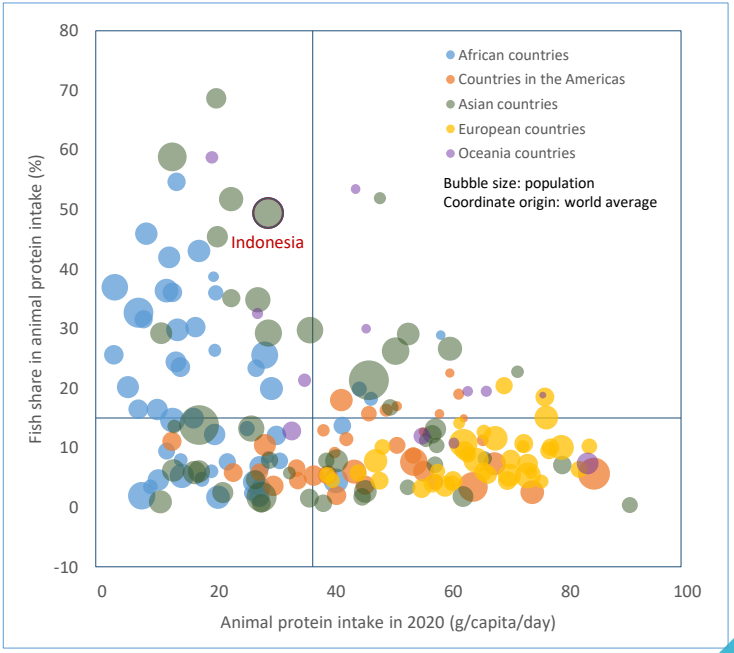


Data source: FAOSTAT New Food Balances (updated on 27 October, 2023; http://www.fao.org/faostat/en/#data/FBS).
Note: See slide #4 for the scope of fish & seafood.

Indonesia (2020): Locating in the second quadrant in the bubble chart, indicating that animal protein intake was lower than the world average, yet the share of fish & seafood was higher.

Contribution of fish to animal protein, 2020

Country/area	Per capita protein intake in 2020 (g/capita/day)		Fish share (%)
	Fish & seafood	Animal products	
World	**5.6**	**37.1**	**15.0**
Developed Regions	6.4	70.8	9.1
Asia	6.7	32.3	20.8
South-eastern Asia	12.2	30.7	39.8
Countries in South-eastern Asia, ranked by animal protein intake			
1. Malaysia	15.5	53.4	29.1
2. Viet Nam	10.9	36.6	29.7
3. Philippines	8.6	29.5	29.2
4. Indonesia	***14.5***	***29.4***	***49.4***
5. Thailand	9.7	27.7	34.8
6. Lao People's Democratic Republic	8.1	23.2	35.1
7. Myanmar	12.0	23.2	51.7
8. Cambodia	14.1	20.6	68.6
9. Timor-Leste	1.8	13.4	13.6



Data source: FAOSTAT New Food Balances (updated on 27 October, 2023; http://www.fao.org/faostat/en/#data/FBS).
Notes: Country grouping based on UN-OHRLLS and UN M49 standard.

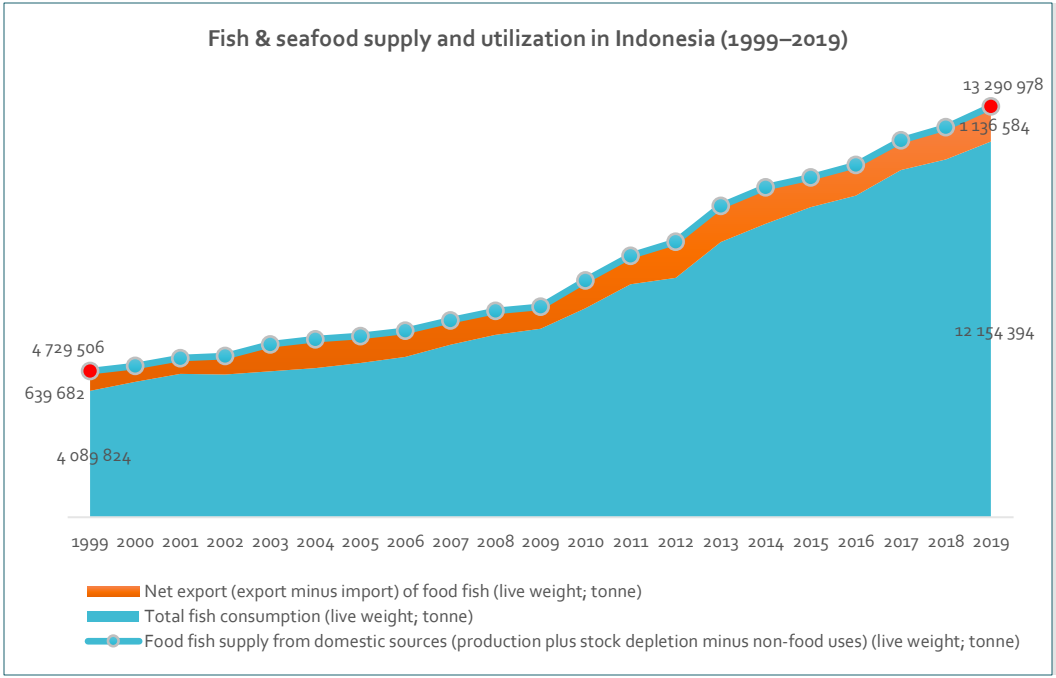
Status and trend of fish & seafood supply and utilization in Indonesia (1999–2019):

Food fish & seafood supply from domestic sources increased from 4 729 506 tonnes in 1999 to 13 290 978 tonnes in 2019.

Total fish & seafood consumption increased from 4 089 824 tonnes to 12 154 394 tonnes.

Net export increased from 639 682 tonnes to 1 136 584 tonnes.

In 2019, 13 290 978 tonnes of food fish & seafood supply from domestic sources = 12 154 394 tonnes of total fish & seafood consumption (91.4 percent) + 1 136 584 tonnes net export of food fish & seafood (8.6 percent).



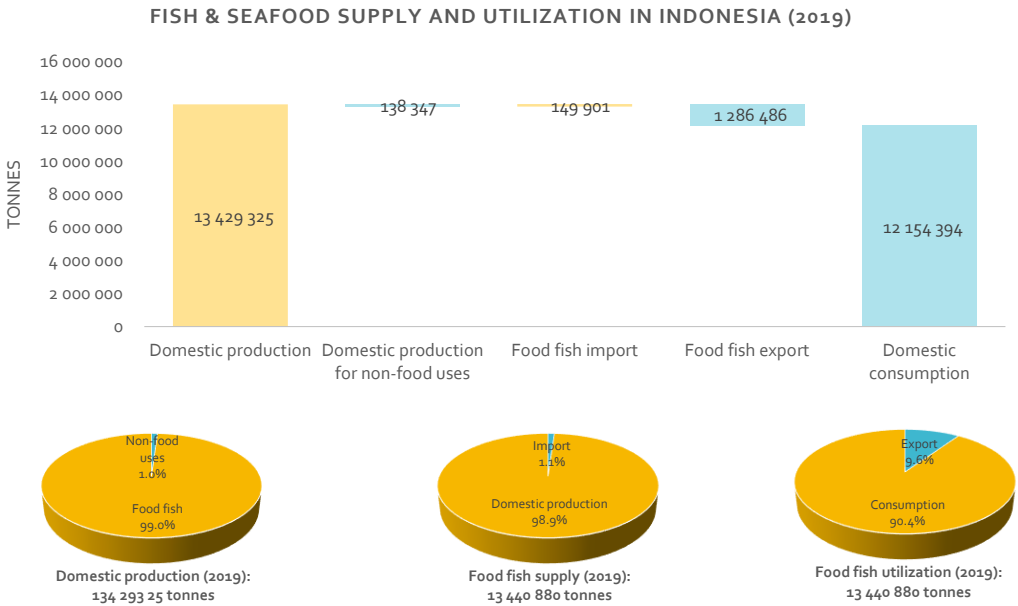
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Note: See slide #4 for the scope of fish & seafood.

Indonesia's food balance sheet for fish & seafood, 2019

13 429 325 tonnes domestic fish & seafood production – 138 347 tonnes for non-food use (1 percent) = 13 290 978 tonnes domestic food fish & seafood production (99 percent).

13 290 978 tonnes domestic food fish & seafood production (98.9 percent of food fish supply) + 149 901 tonnes of import of food fish & seafood (1.1 percent) = 13 440 880 tonnes food fish & seafood supply available for utilization.

13 440 880 tonnes utilization of food fish & seafood = 1 286 486 tonnes export of food fish & seafood (9.6 percent of food fish & seafood utilization) + 12 154 394 tonnes domestic (food) fish & seafood consumption (90.4 percent).



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Note: See slide #4 for the scope of fish & seafood. Numbers may not add up exactly due to rounding.

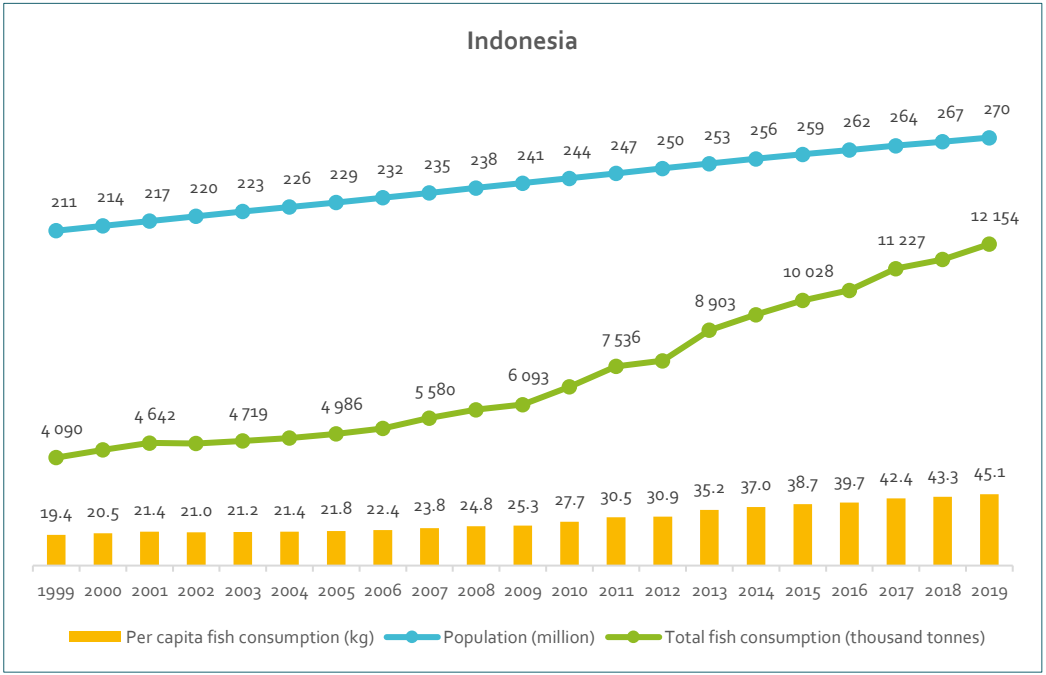
Domestic market (consumption)

Status and trend of fish & seafood consumption in Indonesia (1999–2019):

Between 1999 and 2019, Indonesia's total fish & seafood consumption increased from 4 090 thousand tonnes to 12 154 thousand tonnes.

Population increased from 211 million to 270 million.

Accordingly, the country's per capita fish & seafood consumption increased from 19.4 kg to 45.1 kg.

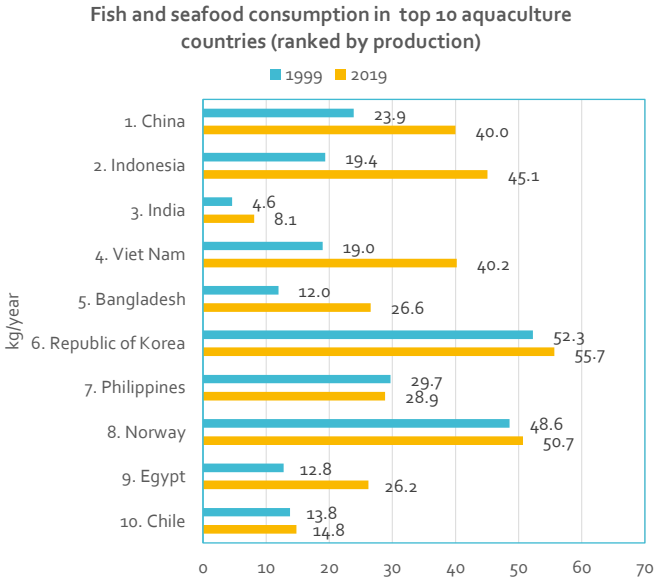


Data source: Data on total consumption from FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj
Data on population from the United Nations World Population Prospects (2022 revision) https://esa.un.org/unpd/wpp/Download/Standard/Population. Per capita consumption = Total consumption ÷ population.
Note: See slide #4 for the scope of fish & seafood.

Between 1999 and 2019, per capita fish & seafood consumption in Indonesia increased from 19.4 kg to 45.1 kg. The 4.3 percent annual growth was greater than subregional, regional, and world averages. The country's per capita fish & seafood consumption in 2019 was the 3rd highest in South-eastern Asia and ranked #3 among the top 10 aquaculture countries, only lower than Norway and Republic of Korea.

Status and trend of per capita fish & seafood consumption

Country/area	Per capita fish & seafood consumption (kg/year)		Annual growth (%)
	1999	2019	
World	**15.7**	**20.5**	**1.3**
Developed Regions	25.1	24.2	-0.2
Asia	17.1	24.5	1.8
South-eastern Asia	23.7	39.8	2.6
Countries in South-eastern Asia, ranked by consumption in 2019			
1. Malaysia	64.2	54.0	-0.9
2. Singapore	28.8	46.4	2.4
3. Indonesia	***19.4***	***45.1***	***4.3***
4. Cambodia	20.0	44.9	4.1
5. Brunei Darussalam	31.5	44.4	1.7
6. Myanmar	14.3	41.2	5.4
7. Viet Nam	19.0	40.2	3.8
8. Philippines	29.7	28.9	-0.1
9. Thailand	30.9	28.8	-0.4
10. Lao People's Democratic Republic	11.5	26.3	4.2
11. Timor-Leste	3.9	6.6	2.6



Data source: Data on total consumption from FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj Data on population from the United Nations World Population Prospects (2022 revision) https://esa.un.org/unpd/wpp/Download/Standard/Population.
Per capita consumption = Total consumption ÷ population.
Notes: See slide #4 for the scope of fish & seafood.

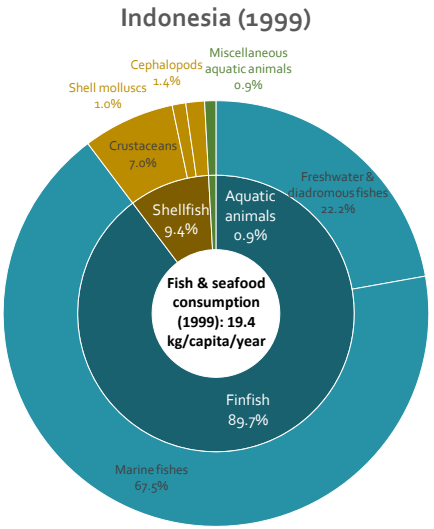
Per capita fish & seafood consumption in Indonesia (1999 versus 2019):

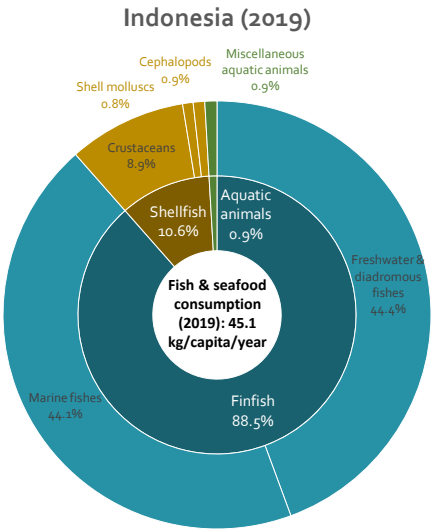
Per capita fish & seafood consumption increased from 19.4 kg in 1999 to 45.1 kg in 2019.

The share of marine fishes declined from 67.5 percent to 44.1 percent.

The share of freshwater fishes increased from 22.2 percent to 44.4 percent.

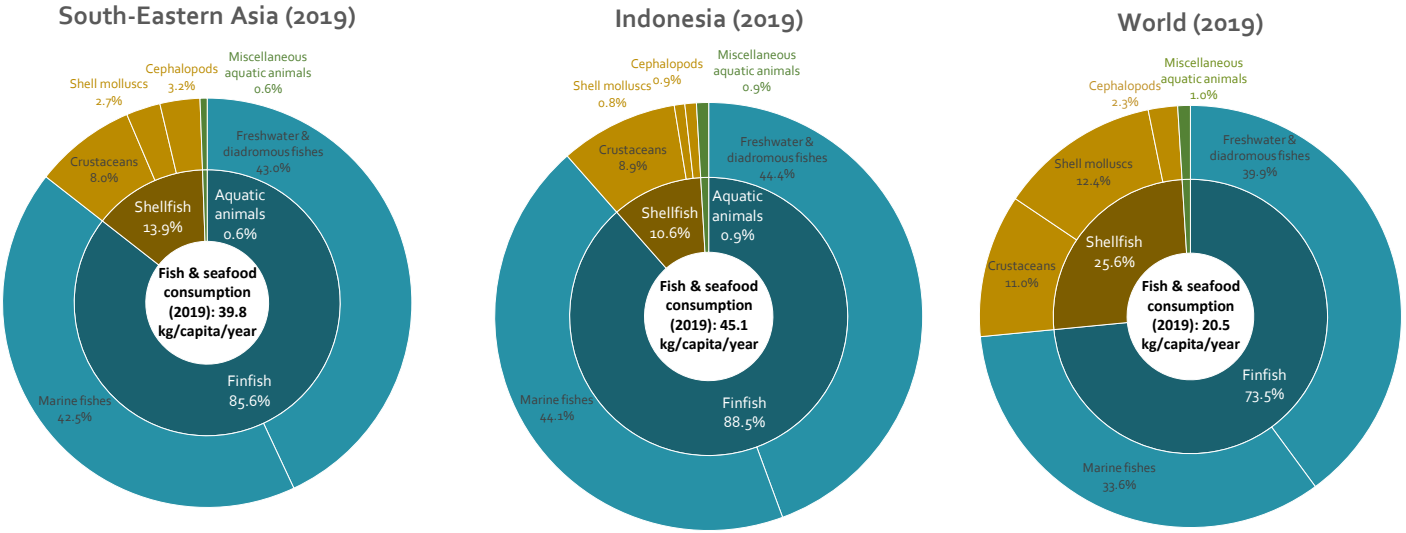
The share of crustaceans increased from 7 percent to 8.9 percent.





Data source: Data on total consumption from FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj
Data on population from the United Nations World Population Prospects (2022 revision) https://esa.un.org/unpd/wpp/Download/Standard/Population. Per capita consumption = Total consumption ÷ population.
Note: See slide #4 for the scope of fish & seafood.

Indonesia (2019): The 45.1 kg per capita fish & seafood consumption was higher than both subregional and world averages. So were the share of freshwater & diadromous fishes (44.4 percent) and the share of marine fishes (44.1 percent). The share of crustaceans was higher than the subregional average yet lower than the world average.



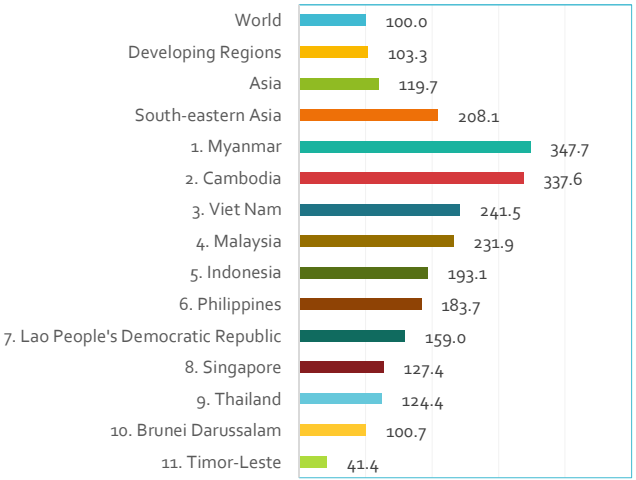
Data source: Data on total consumption from FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj
Data on population from the United Nations World Population Prospects (2022 revision) https://esa.un.org/unpd/wpp/Download/Standard/Population. Per capita consumption = Total consumption ÷ population.
Note: See slide #4 for the scope of fish & seafood.

Indonesia's 193.1 seafood liking index (SLI) in the 2010s indicates that its preference for fish & seafood was nearly twice of the world average. The SLI, which was the 5th highest in South-eastern Asia, was also above the Developing Regions average (103.3) and the Asia average (119.7), yet it was lower than the South-eastern Asia average (208.1). The country's SLIs for most aquatic foods were above world averages, except for shell molluscs and miscellaneous aquatic animals.

Indonesia's preferences for aquatic foods, 2010–2017

Indonesia	Seafood liking index (SLI, 2010-17 average)	Per capita consumption, 2010-17 average	
		kg/year	Ratio to world average (%)
Fish & seafood	**193.1**	**35.86**	**198.1**
Finfish & shellfish	193.7	35.64	198.7
Finfish	224.2	32.27	239.7
Freshwater & diadromous fishes	165.0	14.43	227.1
Marine fishes	270.5	17.84	278.1
Shellfish	105.2	3.38	78.3
Crustaceans	199.1	2.77	172.9
Molluscs	32.5	0.60	23.0
Shell molluscs	15.8	0.22	10.4
Cephalopods	120.5	0.39	98.2
Miscellaneous aquatic animals	72.1	0.22	162.8

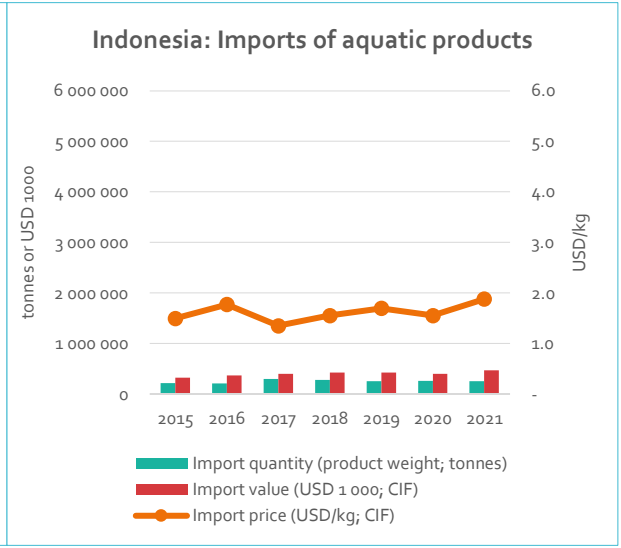
Preferences for fish and seafood in South-eastern Asia, measured by seafood liking index (SLI)



Data source: Cai, J. & Leung, P.S. 2022. Unlocking the potential of aquatic foods in global food security and nutrition: A missing piece under the lens of seafood liking index. *Global food security, 33, 100641*. doi.org/10.1016/j.gfs.2022.100641
Note: SLI = Seafood Liking Index.

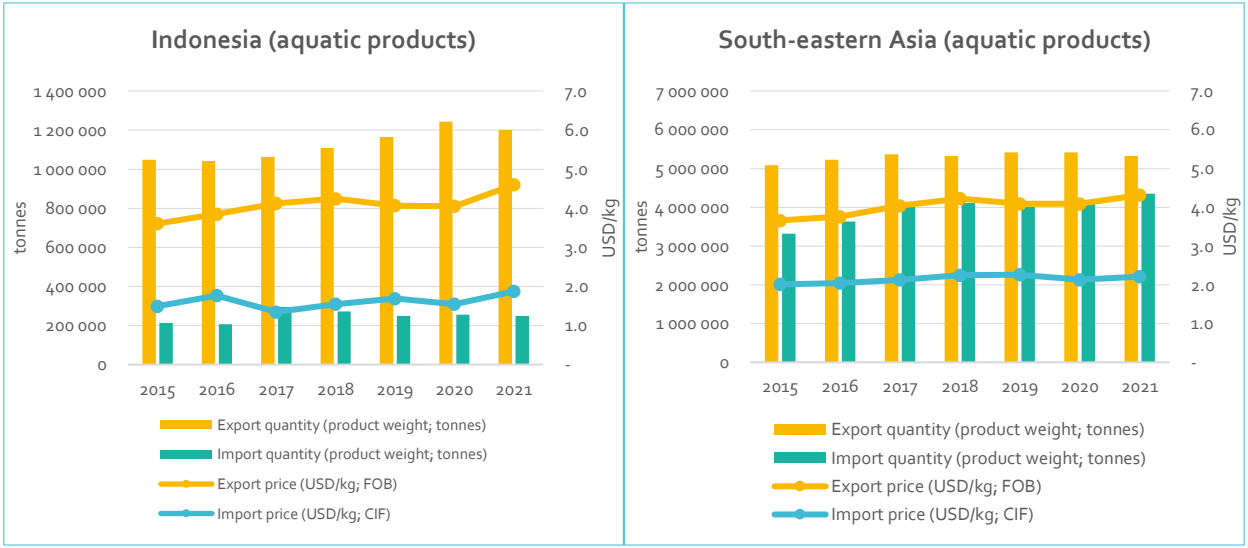
International trade

Status and trend of the international trade of aquatic products in Indonesia, 2015–2021



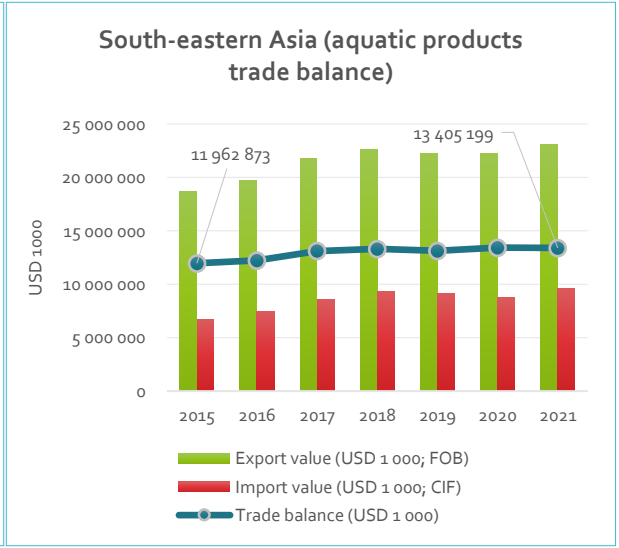
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. CIF = Cost, insurance and freight; FOB = Free on board.

Indonesia (2015–2021): Aquatic products export quantity was higher than the import quantity, which was similar to the pattern of South-eastern Asia. So was the pattern of higher aquatic export prices than import prices. The import-export price gaps in the country were higher than subregional averages.



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. CIF = Cost, insurance and freight; FOB = Free on board.

Aquatic products trade surplus in Indonesia increased from USD 3.47 billion in 2015 to USD 5.06 billion in 2021, while the subregional surplus increased in USD 11.963 billion to USD 13.405 billion.



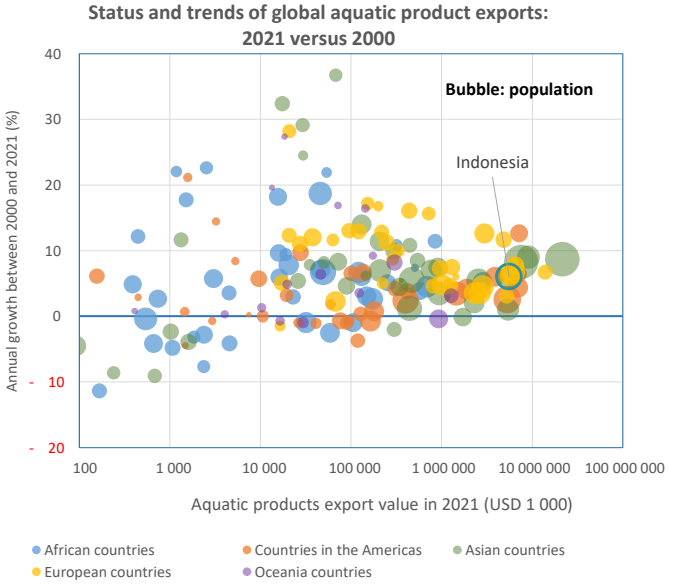
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. CIF = Cost, insurance and freight; FOB = Free on board.

Export

In 2021, Indonesia was the 2nd largest aquatic exporting country in South-eastern Asia. The country's export of aquatic products increased from USD 1.609 billion in 2000 to USD 5.527 billion in 2021, the 6.05 percent annual growth rate was higher than subregional, regional, and world averages.

Status and trend of aquatic products exports (2000–2021)

Country/area	Aquatic products export value (USD 1 000)		Annual growth (%)
	2000	2021	
World	**55 833 945**	**177 482 619**	**5.66**
Developing Regions	28 357 805	93 858 842	5.87
Asia	19 193 820	63 526 396	5.86
South-eastern Asia	8 809 421	23 055 317	4.69
Countries in South-eastern Asia, ranked by export in 2021			
1. Viet Nam	1 484 316	9 087 478	9.01
2. Indonesia	***1 608 609***	***5 527 393***	***6.05***
3. Thailand	4 384 437	5 411 785	1.01
4. Philippines	455 984	934 831	3.48
5. Malaysia	200 469	909 512	7.47
6. Myanmar	183 707	766 667	7.04
7. Singapore	457 105	299 109	-2.00
8. Cambodia	34 469	88 934	4.62
9. Brunei Darussalam	296	29 543	24.51
10. Timor-Leste		60	n.a.
11. Lao People's Democratic Republic	29	6	-7.57

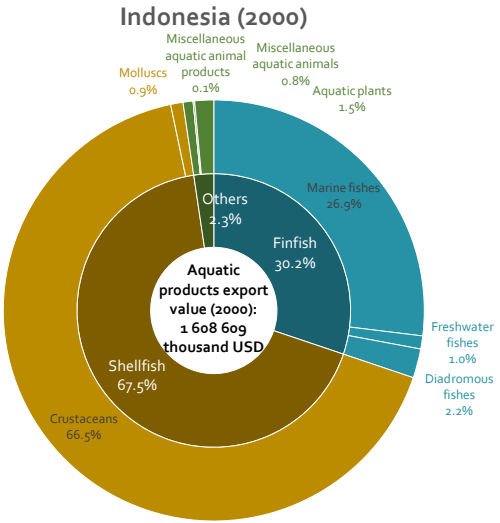


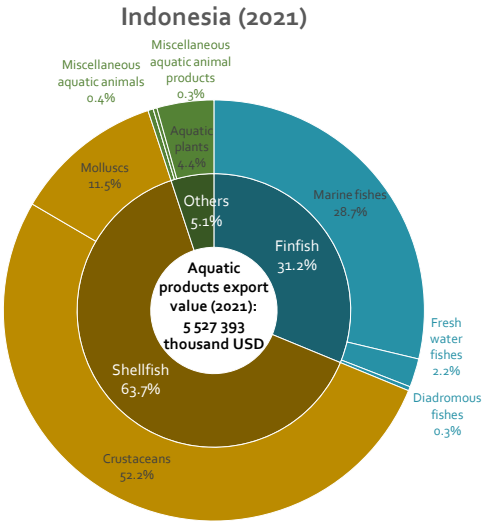
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products.

Indonesia's export of aquatic products (2000 versus 2021):

Aquatic commodities export increased from USD 1.609 billion in 2000 to USD 5.527 billion in 2021, with the share of crustaceans declined from 66.5 percent to 52.2 percent.

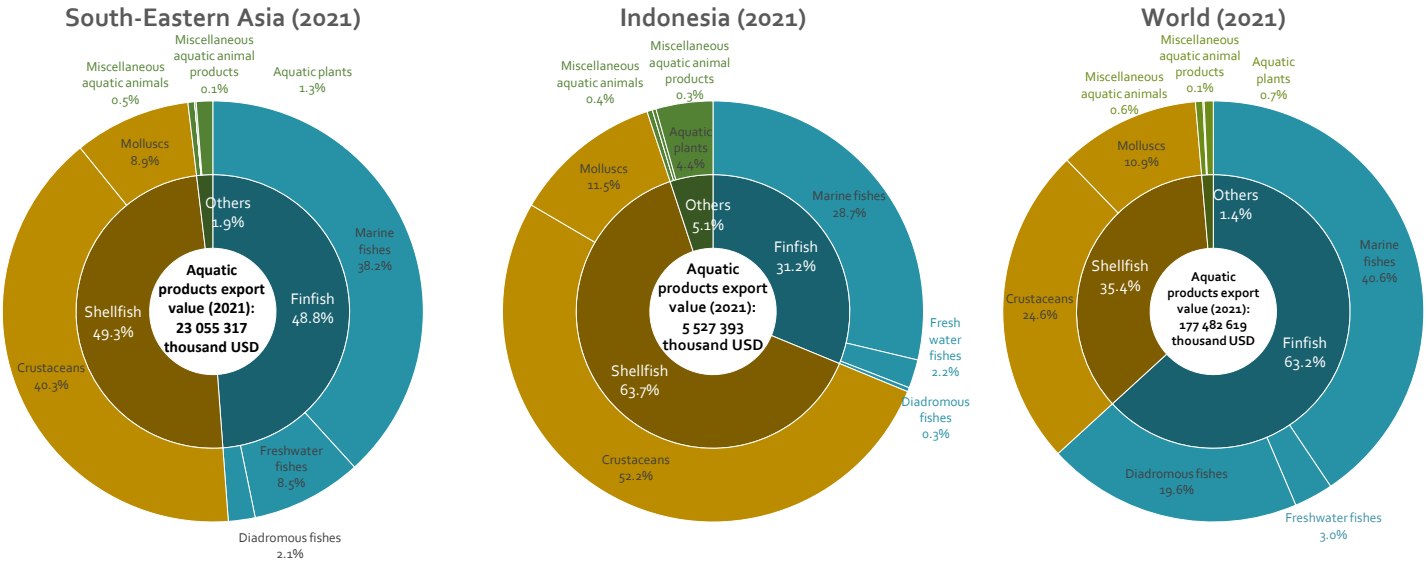
The shares of marine fishes, freshwater fishes, and aquatic plants increased.





Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. Species groups less than 0.1 percent of the total value not labelled in the charts.

Indonesia's export of aquatic products in 2021 comprised mostly crustaceans (52.2 percent), followed by marine fishes (28.7 percent), molluscs (11.5 percent), aquatic plants (4.4 percent), and freshwater fishes (2.2 percent). The shares of crustaceans, molluscs, and aquatic plants were higher than subregional and world averages



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).

Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. Species groups less than 0.1 percent of the total value not labelled in the charts.

Shrimps and prawns accounted for 21.29 percent of Indonesia's aquatic export in tonnage and 40.37 percent in value. Other relatively large export commodities include miscellaneous aquatic plants, tunas/bonitos/billfishes, squids/cuttlefishes/octopuses, and crabs/sea-spiders.

Indonesia's aquatic products export, 2021

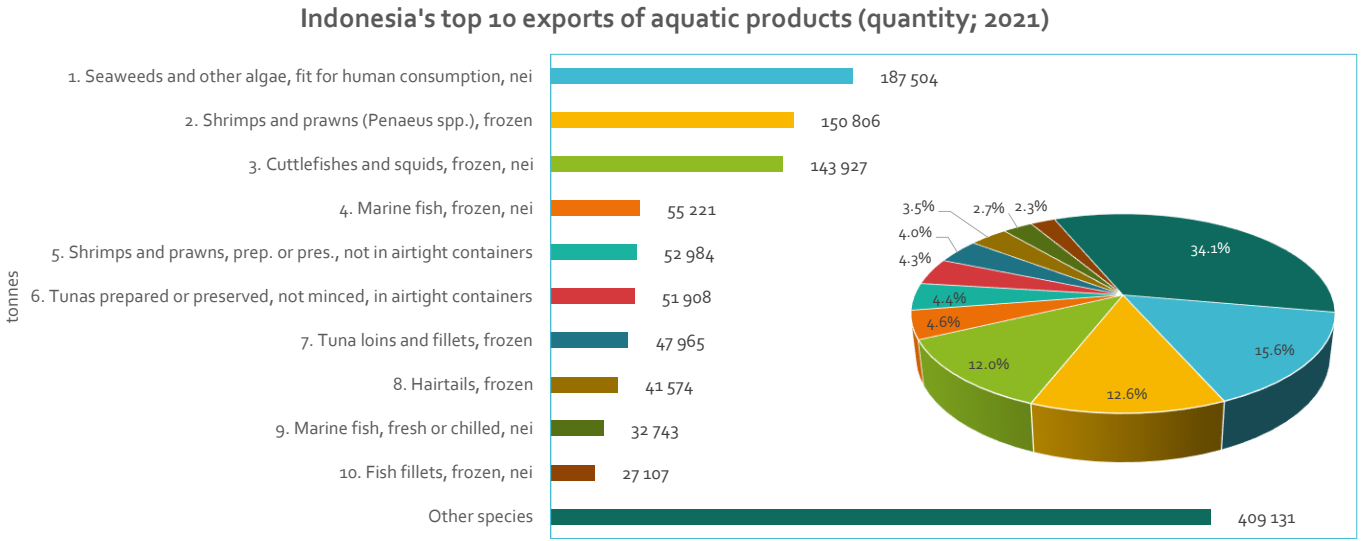
Top 10 export species groups in terms of quantity			
ISSCAAP groups in Indonesia's exports quantity	**Product weight (tonnes)**	**Share of the country's total exports of all aquatic commodities (%)**	**Share of world exports of the same species group (%)**
1. Shrimps, prawns	255 645	21.29	6.69
2. Miscellaneous aquatic plants	210 183	17.50	41.23
3. Tunas, bonitos, billfishes	178 906	14.90	4.60
4. Squids, cuttlefishes, octopuses	168 226	14.01	6.69
5. Marine fishes not identified	166 395	13.86	1.79
6. Miscellaneous demersal fishes	43 894	3.66	10.24
7. Miscellaneous pelagic fishes	42 736	3.56	1.10
8. Crabs, sea-spiders	32 183	2.68	8.42
9. Herrings, sardines, anchovies	22 651	1.89	0.72
10. Miscellaneous freshwater fishes	17 844	1.49	2.26
Others	*62 206*	*5.18*	-
Aquatic products	**1 200 868**	**100.00**	**2.90**

Top 10 export species groups in terms of value			
ISSCAAP groups in Indonesia's exports value	**FOB value (USD 1000)**	**Share of the country's total exports of all aquatic commodities (%)**	**Share of world exports of the same species group (%)**
1. Shrimps, prawns	2 231 618	40.37	7.52
2. Tunas, bonitos, billfishes	757 544	13.71	5.17
3. Squids, cuttlefishes, octopuses	618 935	11.20	4.73
4. Crabs, sea-spiders	613 245	11.09	9.69
5. Marine fishes not identified	539 521	9.76	2.33
6. Miscellaneous aquatic plants	241 255	4.36	25.91
7. Miscellaneous pelagic fishes	97 493	1.76	1.43
8. Miscellaneous demersal fishes	76 974	1.39	4.94
9. Tilapias and other cichlids	65 988	1.19	3.31
10. Herrings, sardines, anchovies	57 377	1.04	1.18
Others	*227 442*	*4.11*	-
Aquatic products	**5 527 393**	**100.00**	**3.11**

Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ) www.fao.org/fishery/en/statistics/software/fishstatj

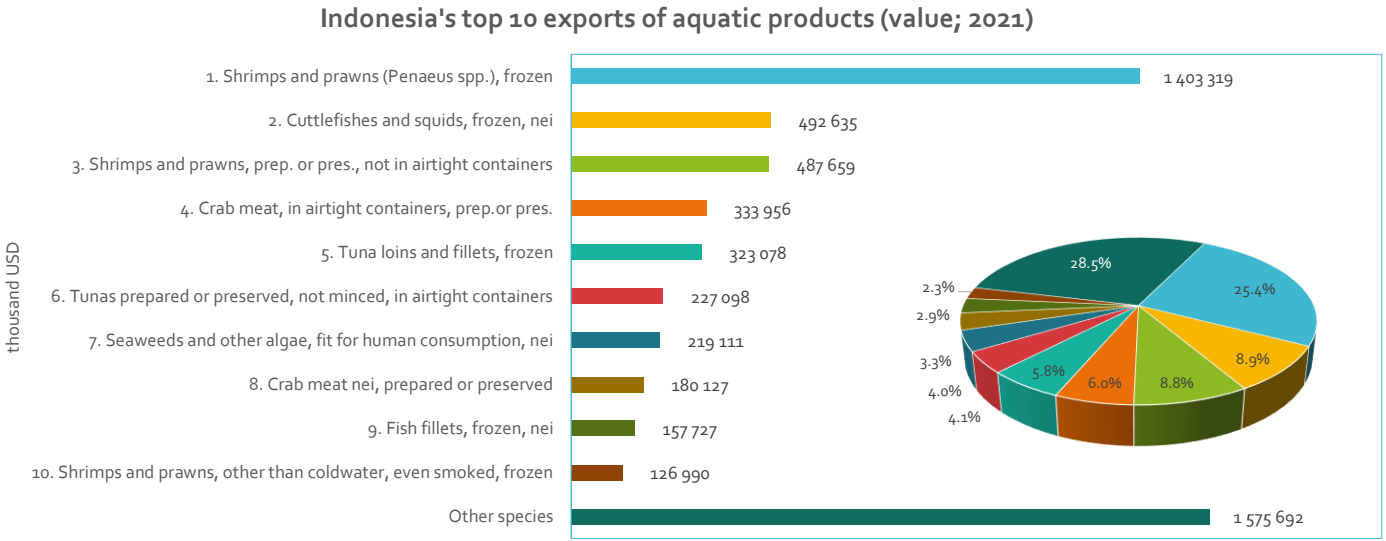
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. FOB = Free on board; ISSCAAP = International Standard Statistical Classification of Aquatic Animals and Plants.

Indonesia's export of aquatic products (quantity; 2021)



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source. Nei = not elsewhere included.

Indonesia's export of aquatic products (value; 2021)



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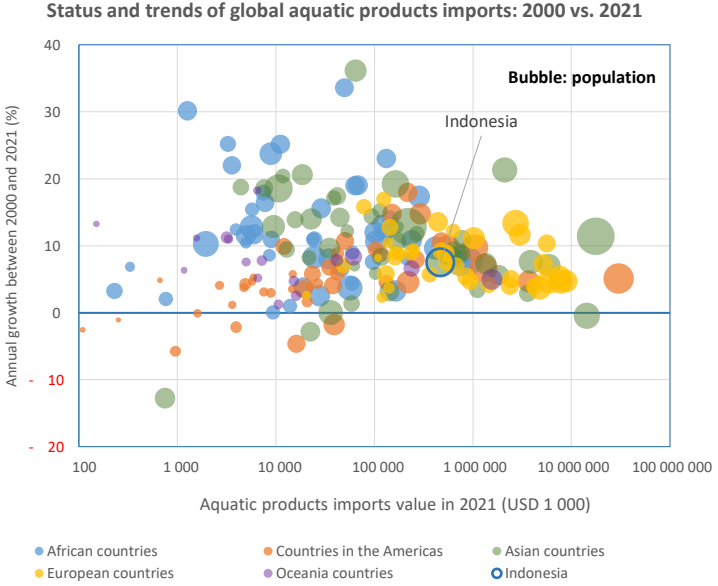
Notes: Includes all aquatic commodities recorded in the data source. Nei = not elsewhere included.

Import

Indonesia's import of aquatic products increased from USD 101.644 million in 2000 to USD 467.186 million in 2021; the 7.53 percent annual growth was higher than regional and world averages yet lower than the subregional average.

Status and trend of aquatic products imports (2000–2021)

Country/area	Aquatic products import value (USD 1 000)		Annual growth (%)
	2000	2021	
World	**61 033 551**	**174 964 717**	**5.14**
Developing Regions	10 452 611	53 447 833	8.08
Asia	24 224 979	57 806 342	4.23
South-eastern Asia	1 947 414	9 650 118	7.92
Countries in Southern Asia, ranked by import in 2021			
1. Thailand	826 699	3 842 501	7.59
2. Viet Nam	36 242	2 096 044	21.31
3. Malaysia	307 340	1 349 744	7.30
4. Singapore	544 165	1 107 326	3.44
5. Philippines	111 596	647 695	8.73
6. Indonesia	***101 644***	***467 186***	***7.53***
7. Brunei Darussalam	15 239	62 863	6.98
8. Cambodia	2 724	44 604	14.24
9. Lao People's Democratic Republic	1 023	15 709	13.89
10. Myanmar	742	9 452	12.88
11. Timor-Leste		6 993	n.a.



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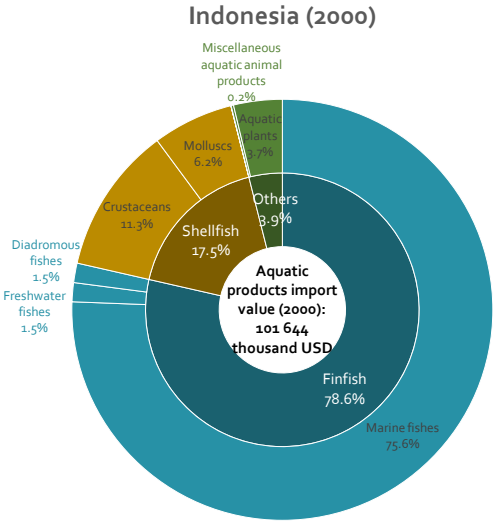
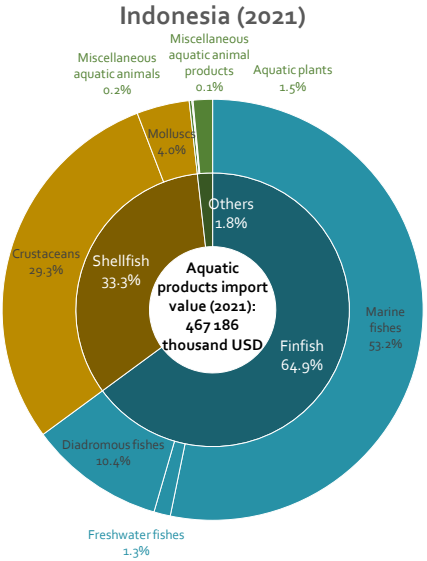
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products.

Indonesia's import of aquatic products (2000 versus 2021):

Aquatic commodities import increased from USD 101.644 million in 2000 to USD 467.186 million in 2021, with the share of shellfish increased from 17.5 percent to 33.3 percent.

The shares of marine fishes, molluscs, aquatic plants, and freshwater fishes declined.





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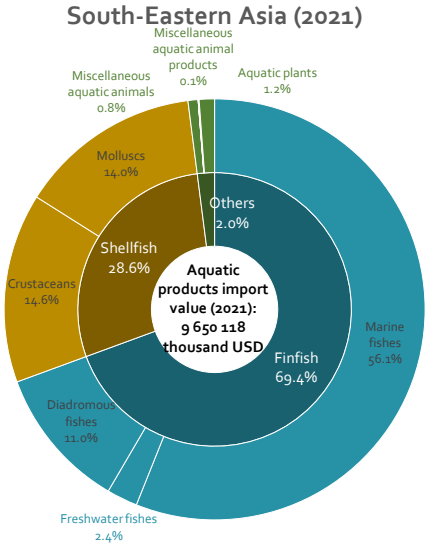
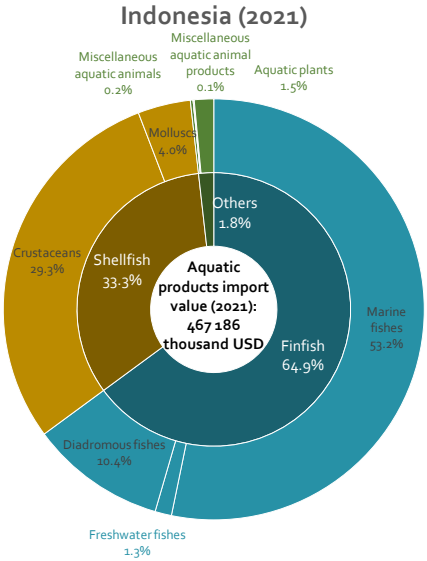
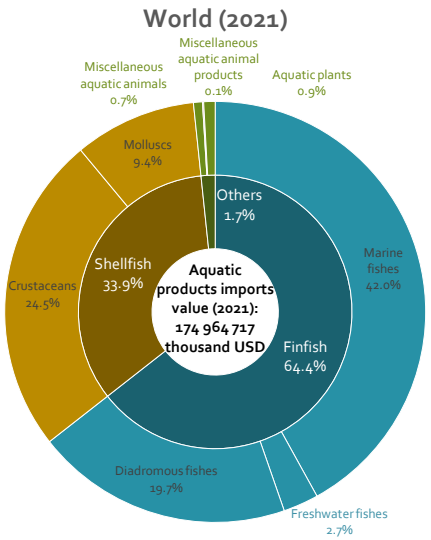
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. Species groups less than 0.1 percent of the total value not labelled in the charts.

Indonesia's import of aquatic products in 2021 comprised mostly marine fishes (53.2 percent). The share was higher than the world average yet lower than the subregional average, while the shares of freshwater fishes and diadromous fishes were lower than both subregional and world averages. The crustacean share was also higher than both subregional and world averages, while the molluscs share was lower.







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Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. Species groups less than 0.1 percent of the total value not labelled in the charts.

Marine fishes not identified accounted for 43.64 percent of Indonesia's aquatic import in tonnage and 22.02 percent in value. Other relatively large commodities included miscellaneous pelagic fishes, tunas/bonitos/billfishes, crabs/sea-spiders, and shrimps/prawns.

Indonesia's aquatic products import in 2021

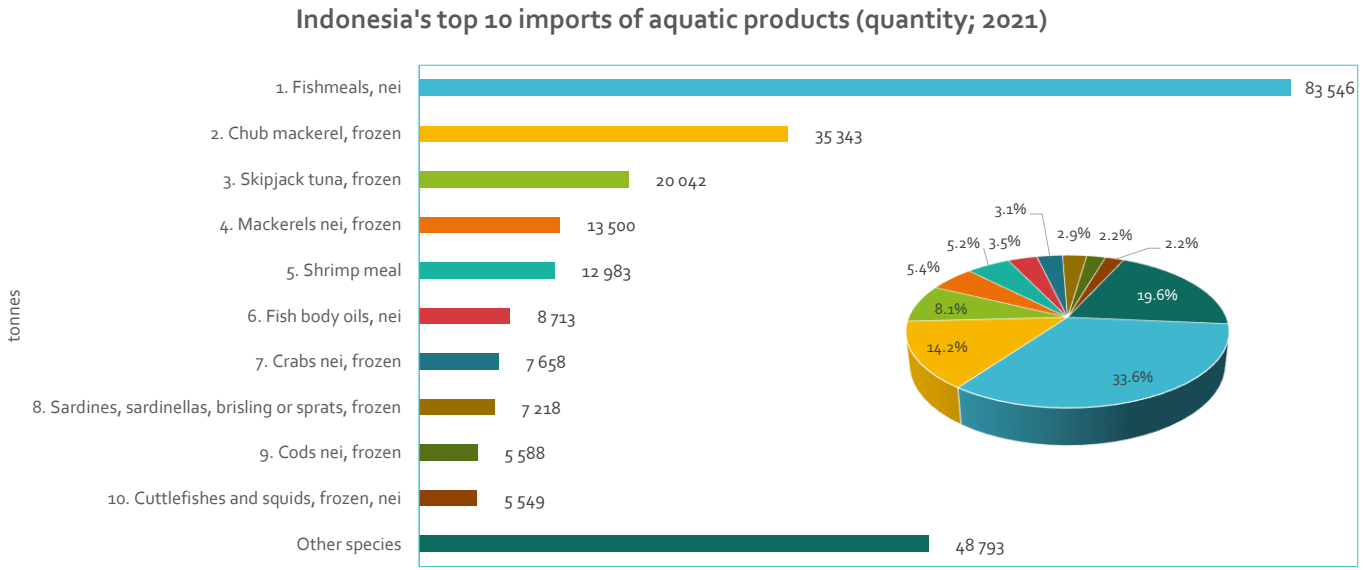
Top 10 import species groups in terms of quantity			
ISSCAAP groups	**Product weight (tonnes)**	**Share of the country's total import of all aquatic commodities (%)**	**Share of world import of the same species group (%)**
1. Marine fishes not identified	108 647	43.64	1.10
2. Miscellaneous pelagic fishes	53 049	21.31	1.45
3. Tunas, bonitos, billfishes	26 690	10.72	0.65
4. Shrimps, prawns	18 635	7.49	0.51
5. Crabs, sea-spiders	8 060	3.24	1.97
6. Herrings, sardines, anchovies	7 817	3.14	0.27
7. Cods, hakes, haddocks	6 647	2.67	0.15
8. Salmons, trouts, smelts	5 905	2.37	0.15
9. Squids, cuttlefishes, octopuses	5 706	2.29	0.24
10. Flounders, halibuts, soles	1 538	0.62	0.26
Others	*6 237*	*2.51*	
Aquatic products	**248 933**	**100.00**	**0.61**

Top 10 import species groups in terms of value			
ISSCAAP groups	**CIF value (USD 1 000)**	**Share of the country's total import of all aquatic commodities (%)**	**Share of world import of the same species group (%)**
1. Marine fishes not identified	102 872	22.02	0.44
2. Crabs, sea-spiders	77 000	16.48	1.11
3. Miscellaneous pelagic fishes	67 187	14.38	1.06
4. Shrimps, prawns	59 085	12.65	0.21
5. Salmons, trouts, smelts	47 636	10.20	0.14
6. Tunas, bonitos, billfishes	44 582	9.54	0.28
7. Cods, hakes, haddocks	22 481	4.81	0.15
8. Squids, cuttlefishes, octopuses	15 843	3.39	0.15
9. Miscellaneous aquatic plants	6 934	1.48	0.61
10. Miscellaneous freshwater fishes	5 918	1.27	0.20
Others	*17 648*	*3.78*	
Aquatic products	**467 186**	**100.00**	**0.27**

Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).

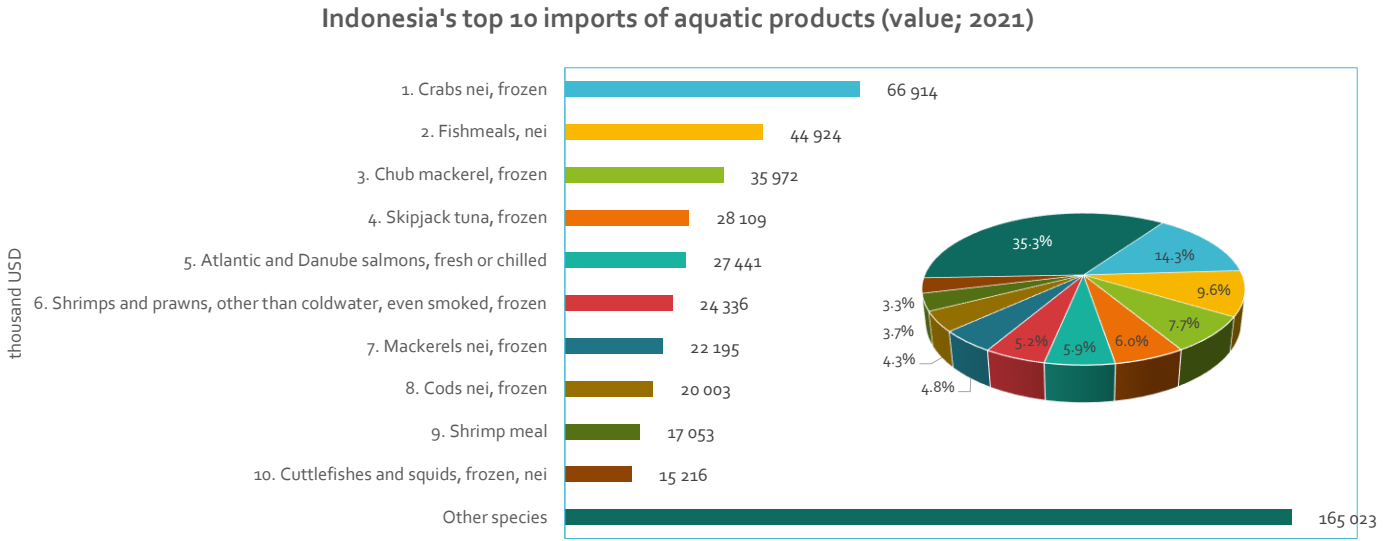
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. CIF = Cost, insurance and freight; ISSCAAP = International Standard Statistical Classification of Aquatic Animals and Plants.

Composition of Indonesia's import of aquatic products (2021; in terms of quantity)



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source. Nei = not elsewhere included.

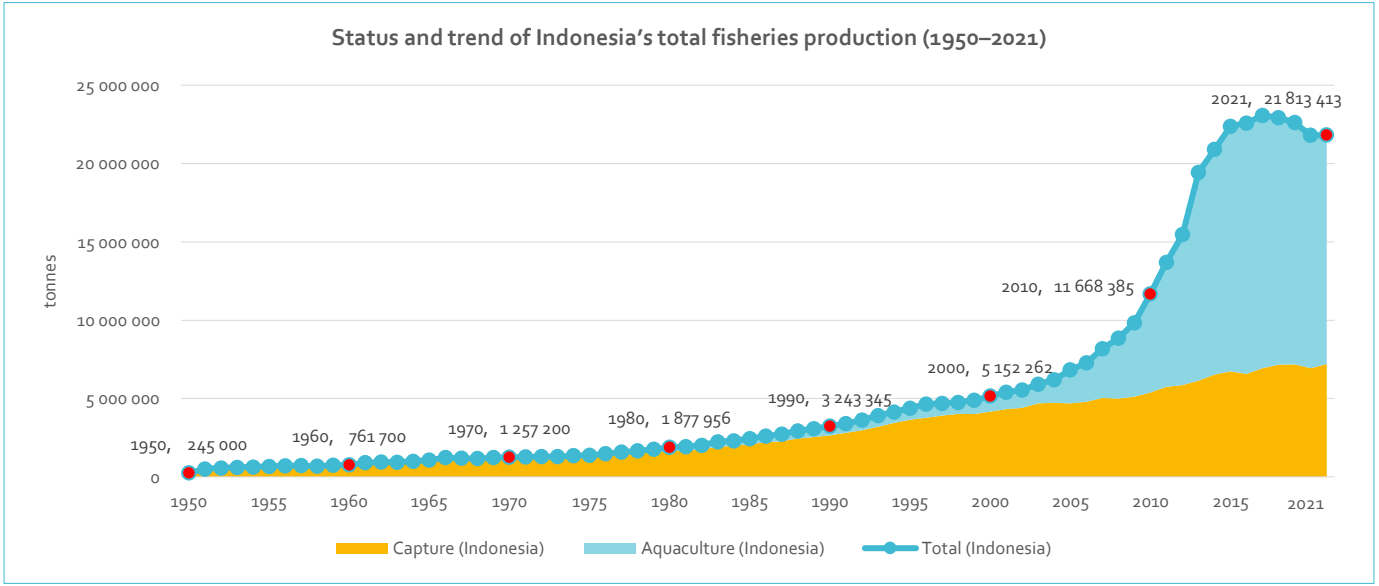
Composition of Indonesia's import of aquatic products (2021; in terms of value)



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source. Nei = not elsewhere included.

Total fisheries production

Indonesia (1950–2021): Total fisheries production increased from 245 000 tonnes in 1950 to 21 813 413 tonnes in 2021. The growth since the mid-2000s was primarily thanks to the expansion of aquaculture production.



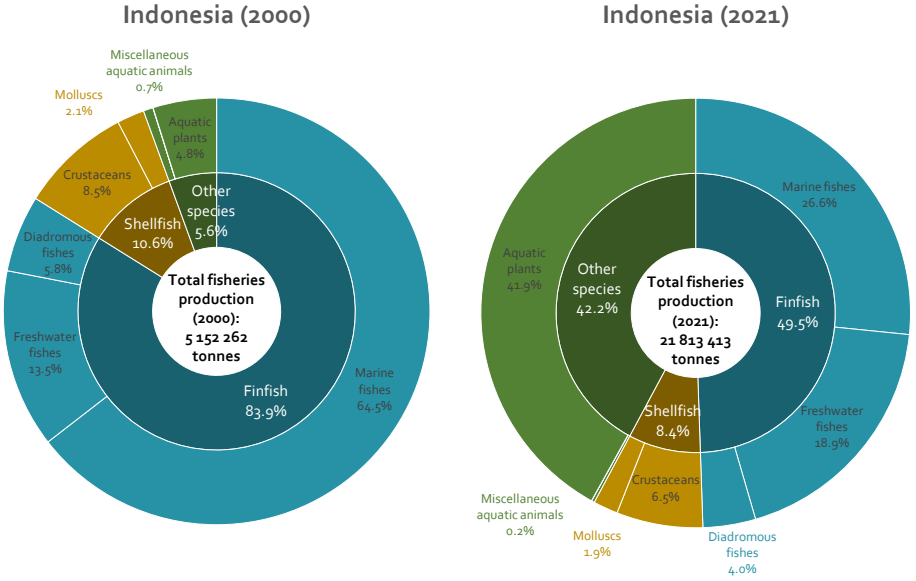
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global production by production source 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species.

Total fisheries production in Indonesia (2000 versus 2021):

Total fisheries production increased from 5 152 262 tonnes in 2000 to 21 813 413 tonnes in 2021.

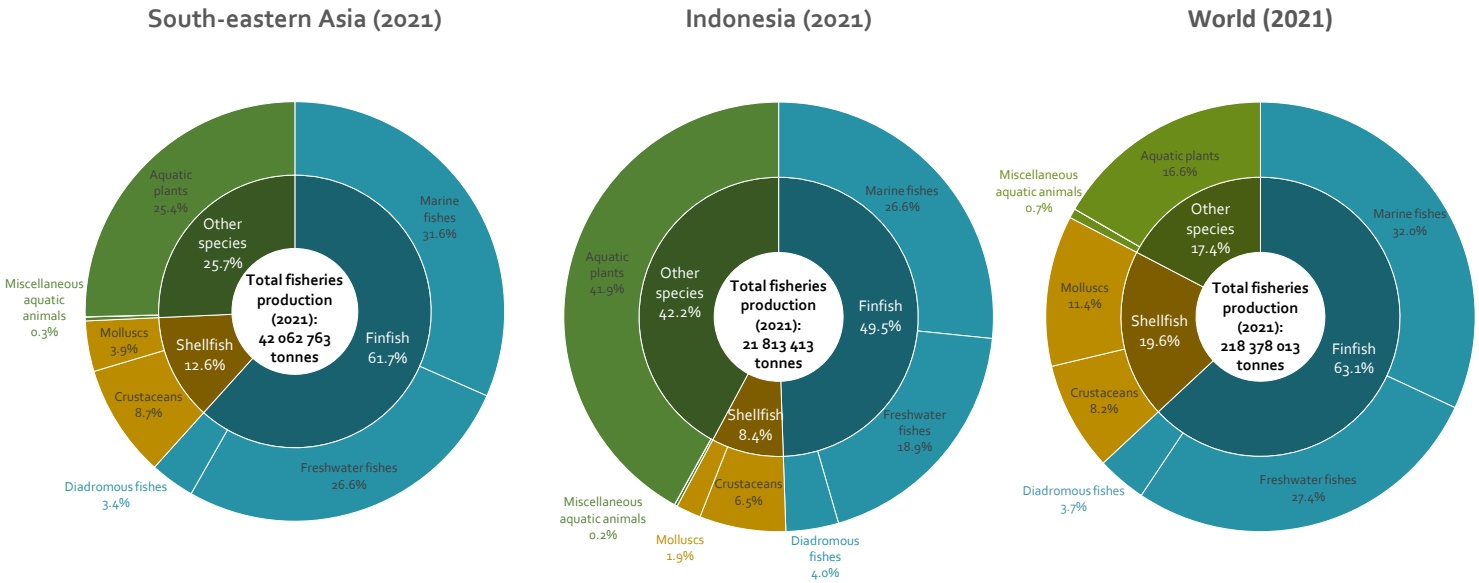
The share of aquatic plants increased from 4.8 percent to 41.9 percent.

The share of freshwater fishes increased from 13.5 percent to 18.9 percent.



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global production by production source 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species. Species accounting for less than 0.1 percent of total production not labelled in the charts.

~40 percent of total fisheries production in Indonesia (2021) came from aquatic plants; the share was greater than sub-regional and world averages. The share of diadromous fishes (4 percent) was also higher, while those of other species groups were lower.



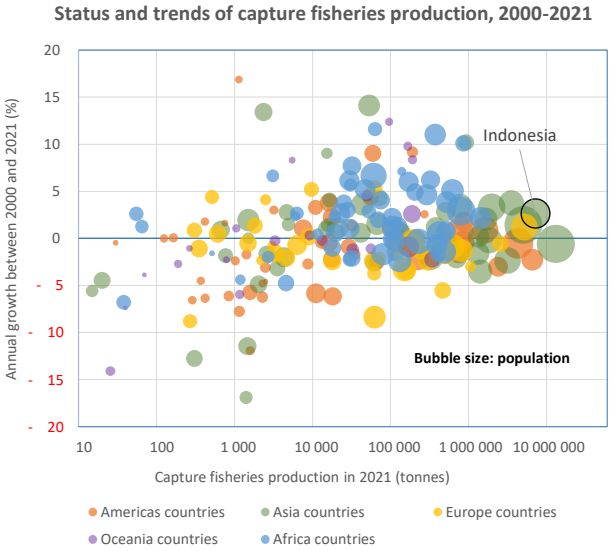
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global production by production source 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species. Species accounting for less than 0.1 percent of total production not labelled in the charts.

Capture fisheries production

Indonesia was the largest capture fisheries country in South-eastern Asia in 2021. Its capture fisheries production increased from 4 158 535 tonnes in 2000 to 7 206 879 tonnes; the 2.65 percent annual growth was higher than subregional, regional, and global averages.

Status and trend of capture fisheries production, 2000 versus 2021

Country/area	Capture fisheries production (tonnes)		Annual growth (%)
	2000	2021	
World	**94 777 809**	**92 342 717**	**-0.12**
Developing Regions	66 000 959	69 567 623	0.25
Asia	43 982 302	47 006 184	0.32
South-eastern Asia	13 414 233	17 603 874	1.30
Countries in South-eastern Asia, ranked by capture fisheries production in 2021			
1. Indonesia	***4 158 535***	***7 206 879***	***2.65***
2. Viet Nam	1 629 612	3 540 250	3.76
3. Philippines	1 920 017	1 842 067	-0.20
4. Myanmar	1 093 200	1 665 740	2.03
5. Thailand	2 997 124	1 412 123	-3.52
6. Malaysia	1 293 397	1 337 231	0.16
7. Cambodia	281 620	508 050	2.85
8. Lao People's Democratic Republic	29 250	71 000	4.31
9. Brunei Darussalam	2 487	15 295	9.03
10. Timor-Leste	3 621	4 933	1.48
11. Singapore	5 371	306	-12.75

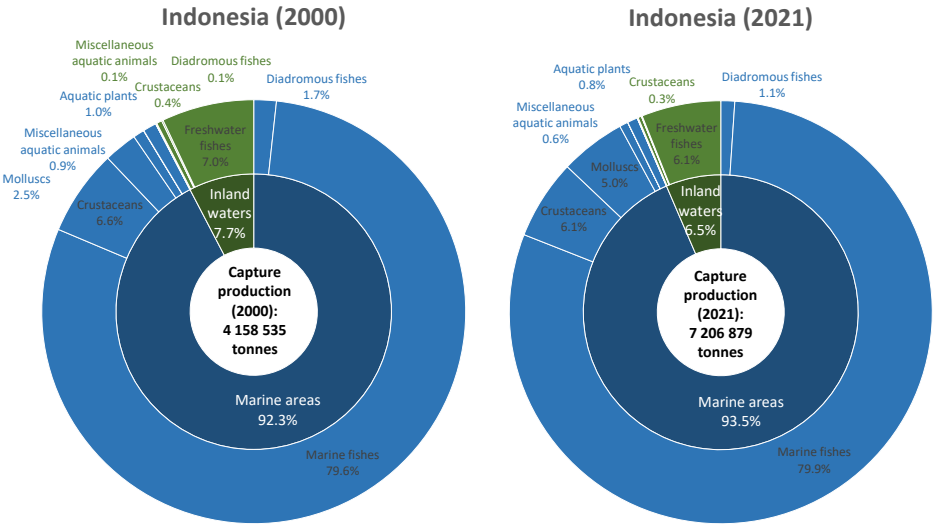


Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: N.a. = not available. Country grouping based on UN-OHRLLS and UN M49 standard. Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species.

Capture fisheries in Indonesia (2000 versus 2021):

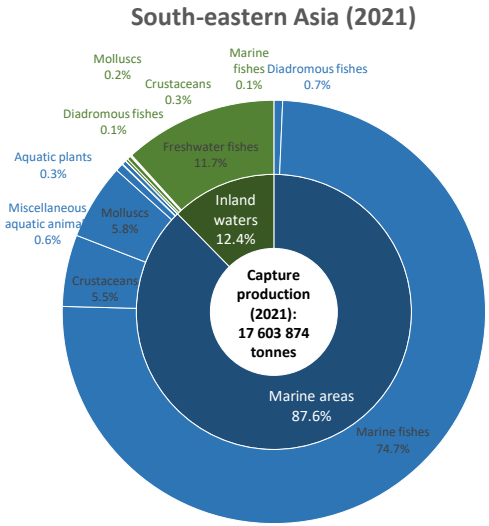
Capture fisheries production increased from 4 158 535 tonnes in 2000 to 7 206 879 tonnes in 2021.

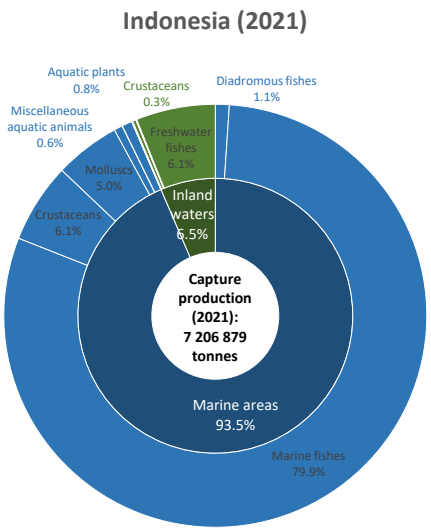
The share of inland fisheries declined slightly from 7.7 percent to 6.5 percent.

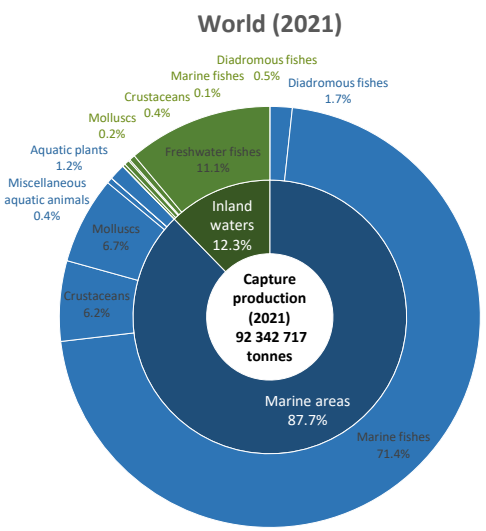


Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Marine areas including coastal areas. Species accounting for less than 0.1 percent of total production not labelled in the charts.

Inland fisheries contributed 6.5 percent of Indonesia's capture fisheries production in 2021, as opposed to 12.4 percent in South-eastern Asia and 12.3 percent in the world.





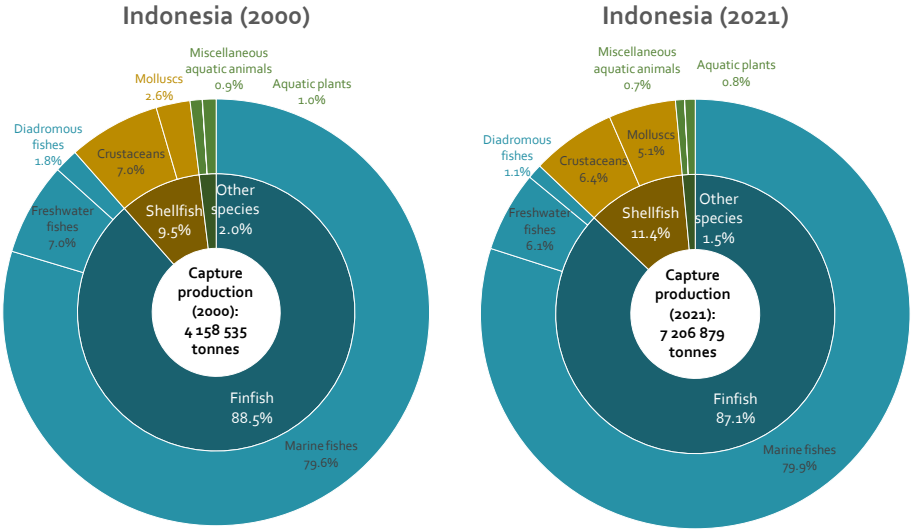


Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Marine areas including coastal areas. Species accounting for less than 0.1 percent of total production not labelled in the charts.

Taxonomic composition of capture fisheries production in Indonesia (2000 versus 2021):

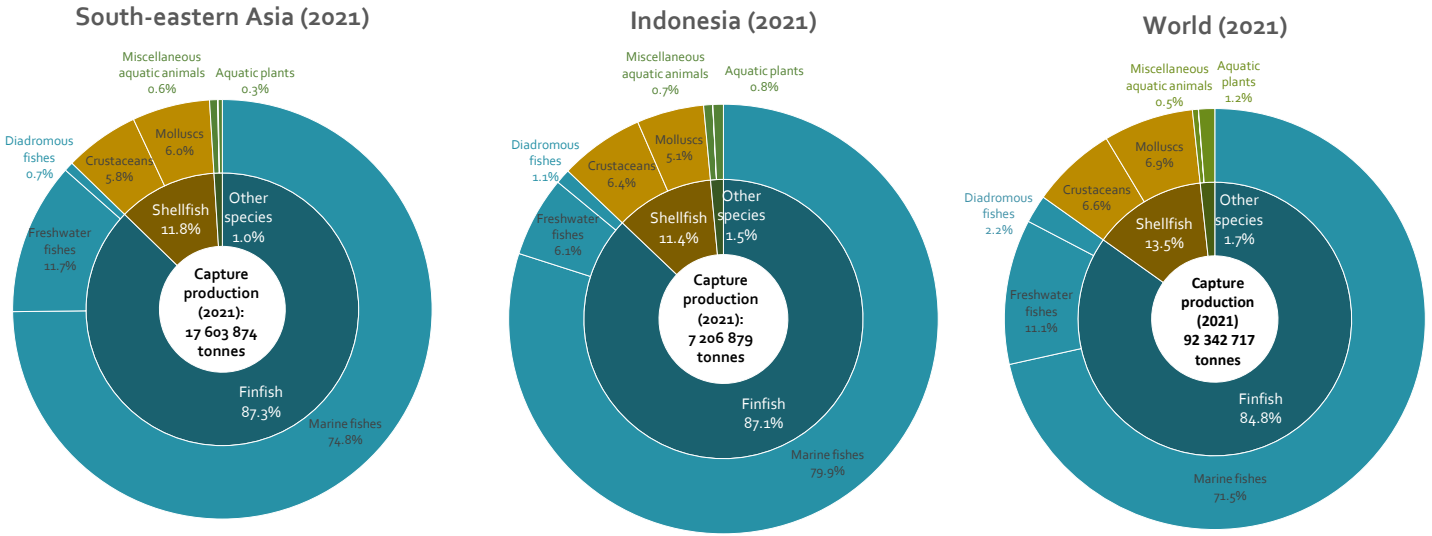
Capture fisheries production increased from 4 158 535 tonnes in 2000 to 7 206 879 tonnes in 2021, with no significant change in the taxonomic composition.

The share of marine fishes remained virtually unchanged, that of molluscs increased, while those of other species groups declined.



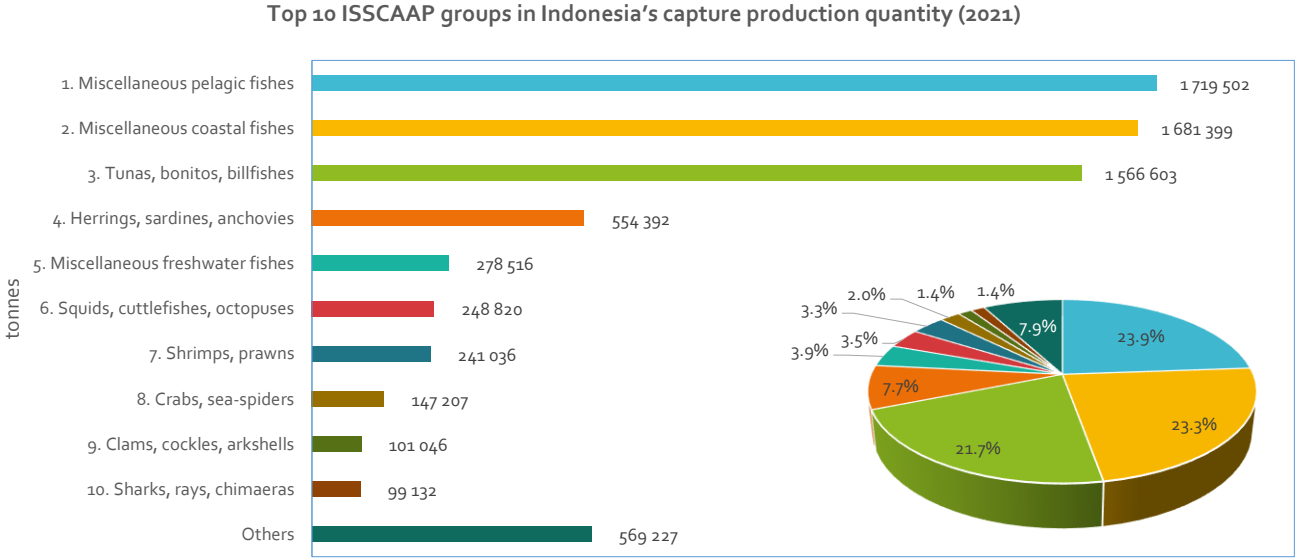
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Species accounting for less than 0.1 percent of total production not labelled in the charts.

Marine fishes accounted for 79.9 percent of Indonesia's capture fisheries production in 2021. The share was higher than world and sub-regional averages, while that of freshwater fishes was lower. The share of crustaceans was higher than the subregional average yet lower than the world average, while that of molluscs was lower than both.



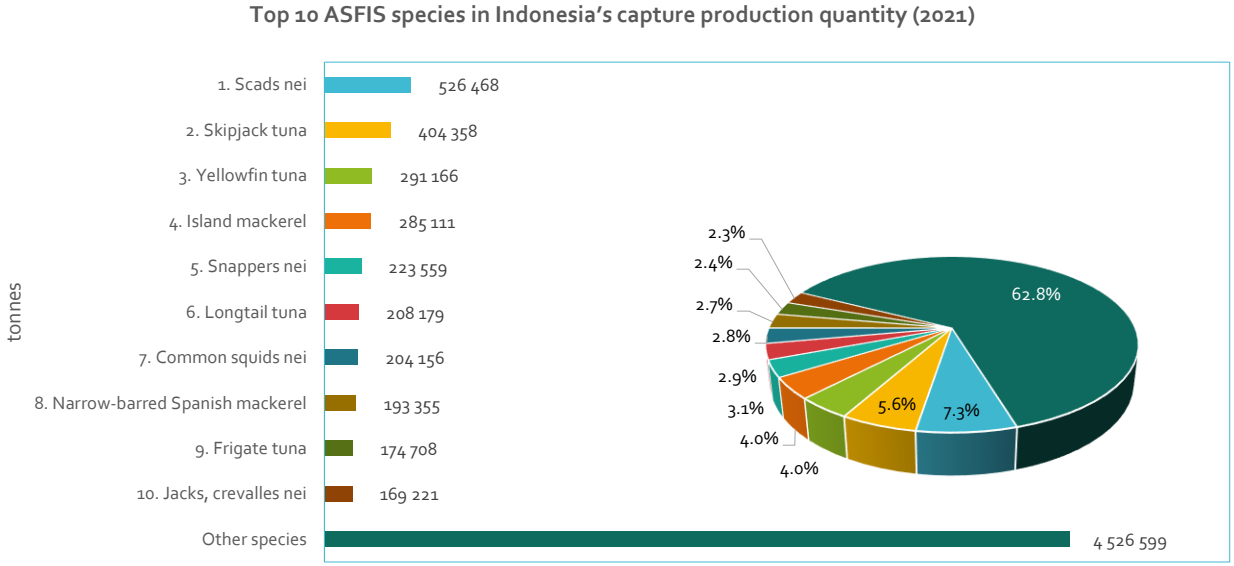
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global production by production source 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Species accounting for less than 0.1 percent of total production not labelled in the charts.

Taxonomic composition of Indonesia's capture fisheries production (2021): Miscellaneous pelagic fishes, miscellaneous coastal fishes, and tunas/bonitos/billfishes accounted for ~70 percent of the production.



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj
Note: ISSCAAP = International Standard Statistical Classification of Aquatic Animals and Plants.

Species composition of Indonesia's capture fisheries production in 2021 is highly diverse, with the largest commodity (scads nei) accounted for 7.3 percent of the production.



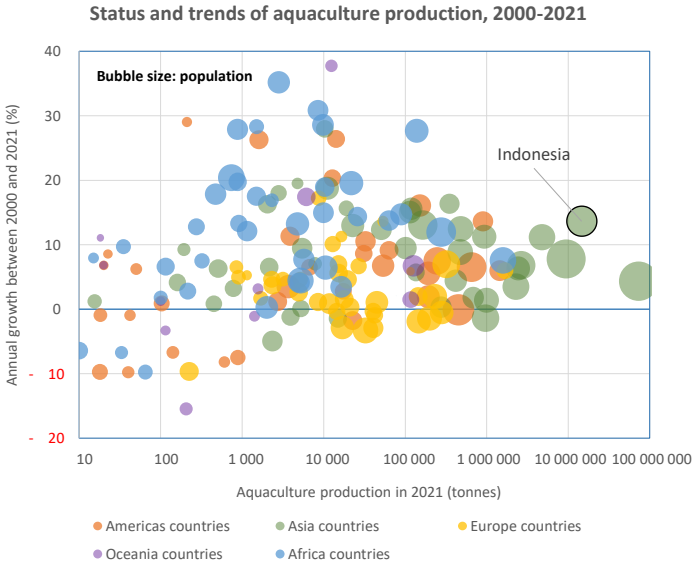
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj
Notes: The common and scientific names of a species follow the names adopted in the database. Nei = not elsewhere included. ASFIS = Aquatic Sciences and Fisheries Information System. www.fao.org/fishery/collection/asfis/en

Aquaculture production

Aquaculture production in Indonesia increased from 993 727 tonnes in 2000 to 14 606 534 tonnes in 2021. The 13.65 percent annual growth was higher than subregional, regional and world averages. It was one of the five countries in the subregion with a double-digit annual aquaculture growth during the period.

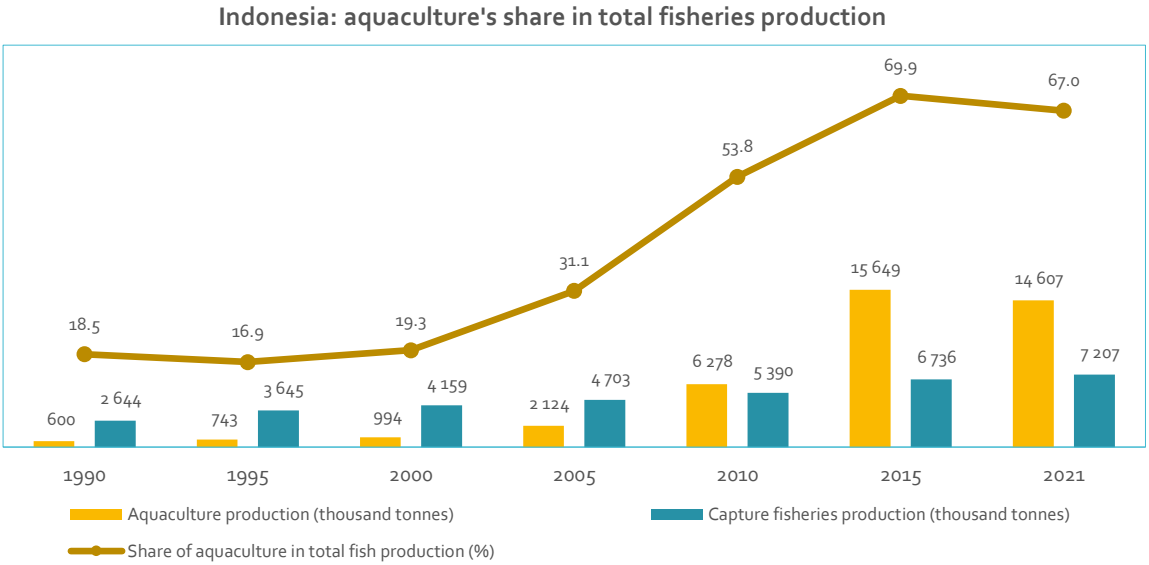
Status and trends of aquaculture production, 2000 versus 2021

Country/area	Aquaculture production of all species (tonnes)		Annual growth (%)
	2000	2021	
World	**43 016 624**	**126 035 297**	**5.25**
Developing Regions	38 941 766	120 573 065	5.53
Asia	38 910 396	115 269 861	5.31
South-eastern Asia	3 674 832	24 458 889	9.45
Countries in South-eastern Asia, ranked by aquaculture production in 2021			
1. Indonesia	***993 727***	***14 606 534***	***13.65***
2. Viet Nam	513 517	4 749 274	11.17
3. Philippines	1 100 902	2 272 528	3.51
4. Thailand	738 155	989 898	1.41
5. Myanmar	98 912	929 217	11.26
6. Malaysia	167 898	416 978	4.43
7. Cambodia	14 430	348 350	16.37
8. Lao People's Democratic Republic	42 066	135 008	5.71
9. Singapore	5 112	5 244	0.12
10. Brunei Darussalam	113	4 768	19.51
11. Timor-Leste		1 091	n.a.



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species.

Aquaculture production in Indonesia increased from 600 thousand tonnes in 1990 to 14 607 thousand tonnes in 2021; the share of aquaculture in total fisheries production increased from 18.5 percent to 67 percent.



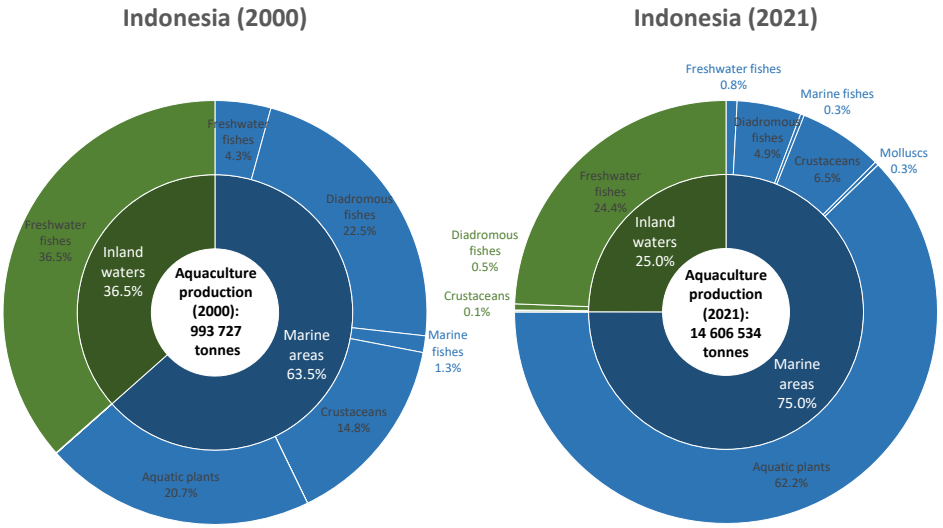
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species.

Aquaculture production in Indonesia by farming area (2000 versus 2021):

Aquaculture production increased from 993 727 tonnes in 2000 to 14 606 534 tonnes in 2021.

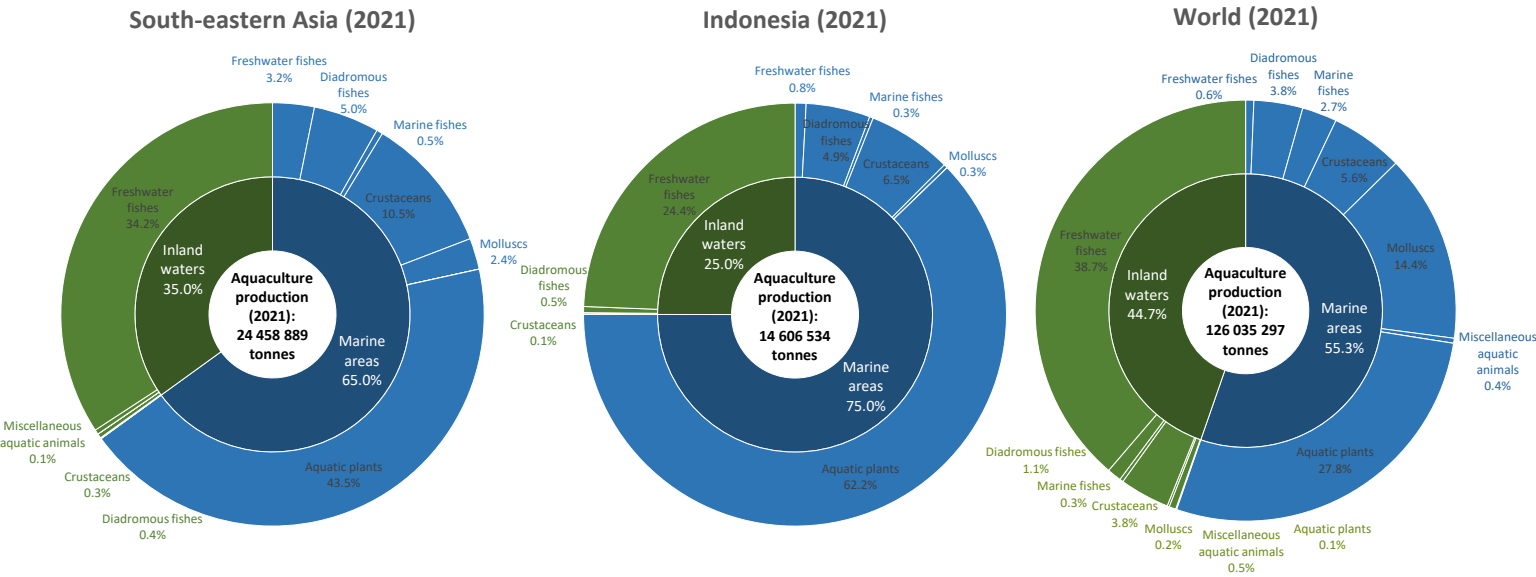
The share of inland aquaculture declined from 36.5 percent to 25 percent.

The taxonomic composition in its inland aquaculture (comprising primarily freshwater fishes) was less diverse than marine and coastal aquaculture.



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Species group less than 0.1 percent of total production may not be labelled.

Inland aquaculture accounted for 25 percent of Indonesia's aquaculture production in 2021, which was lower than the share in South-eastern Asia (35 percent) and the world (44.7 percent).

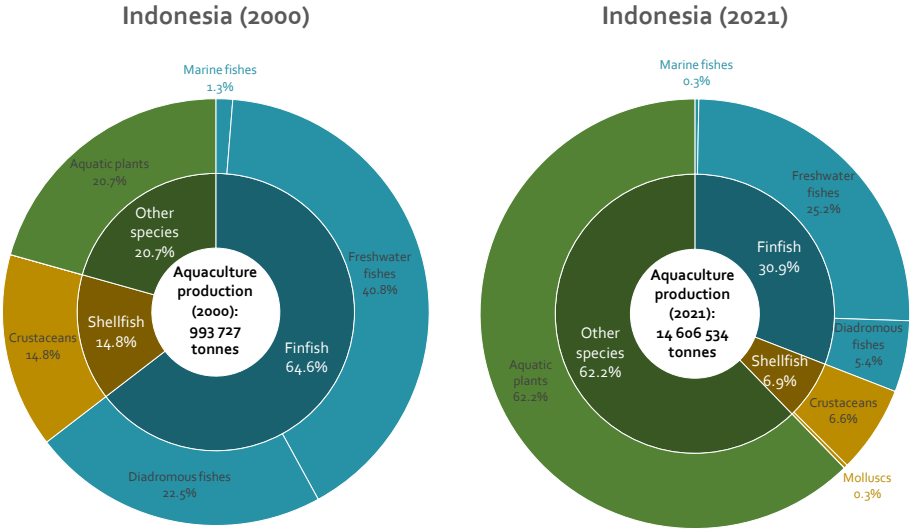


Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species. Species group less than 0.1 percent of total production may not be labelled.

Taxonomic composition in Indonesia's aquaculture production (2000 versus 2021):

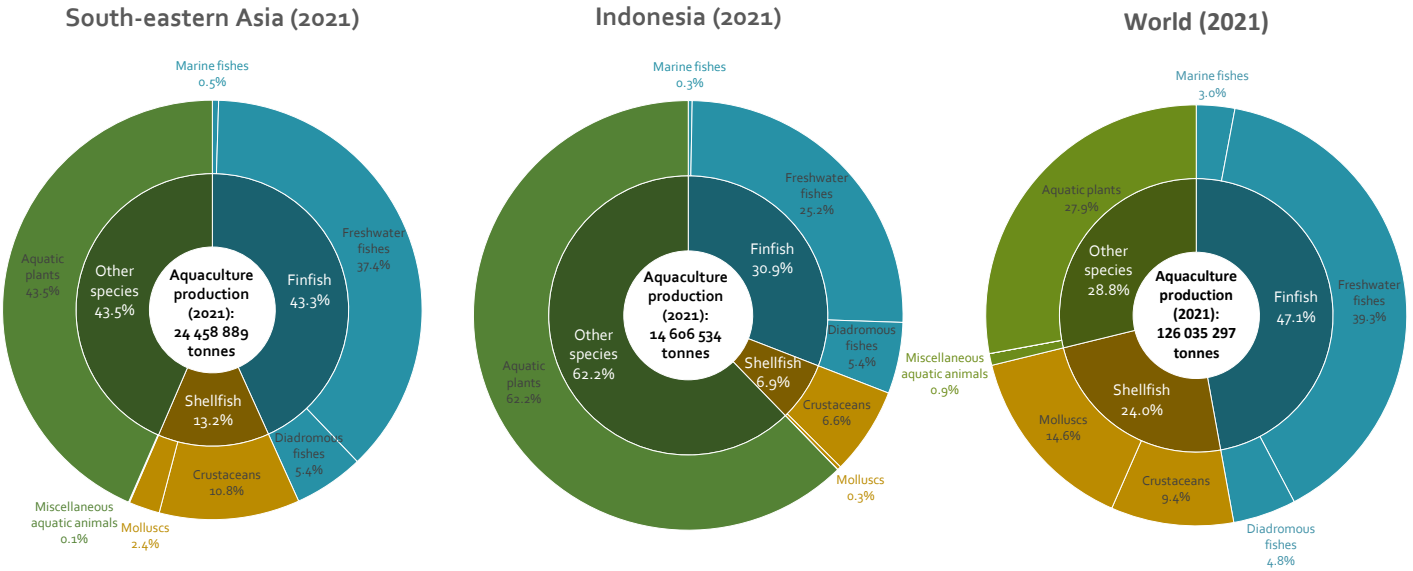
Aquaculture production increased from 993 727 tonnes in 2000 to 14 606 534 tonnes in 2021.

The share of aquatic plants increased from 20.7 percent to 62.2 percent.



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Species accounting for less than 0.1 percent of total production not labelled in the charts.

Aquatic plants accounted for 62.2 percent of Indonesia's 14 606 534 tonnes of aquaculture production in 2021. The share was higher than both subregional and world averages. The 25.2 percent share of freshwater fishes was lower than both subregional and world averages, so was the 6.6 percent share of crustaceans. The 5.4 percent share of diadromous fishes was smaller than the world average.



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Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species. Species group less than 0.1 percent of total production may not be labelled.

Indonesia's 14 606 534 tonnes of aquaculture production in 2021 was contributed by 116 ASFIS species items, with only 6.7 effective number of species (ENS; a measure of species diversity). Red seaweeds accounted for more than half of the production, followed by tilapias, catfishes, marine shrimps and prawns, milkfish, and carps.

Aquaculture species groups by production quantity		Indonesia (all areas; quantity; 2021)				
WAPI species group	ISSCAAP division	Number of ASFIS species items in the group farmed by the country		The country's aquaculture production quantity of each species group (live weight; tonnes)	Share of the country's aquaculture production quantity of all species (%)	Share of world aquaculture production quantity of the same species group (%)
		Total	Effective			
1. Red seaweeds (ISSCAAP group)	Aquatic plants	4	1.8	9 005 771	61.66	51.56
2. Tilapias and other cichlids (ISSCAAP group)	Freshwater fishes	2	1.2	1 356 746	9.29	21.51
3. Catfishes (Siluriformes)	Freshwater fishes	8	1.8	1 356 262	9.29	22.11
4. Marine shrimps and prawns (ISSCAAP group)	Crustaceans	6	1.8	941 170	6.44	12.82
5. Milkfish (Chanidae)	Diadromous fishes	1	1.0	780 639	5.34	61.07
6. Carps, barbels and other cyprinids (ISSCAAP group)	Freshwater fishes	11	1.4	695 346	4.76	2.24
7. Gouramies (Anabantoidei)	Freshwater fishes	5	1.3	156 666	1.07	63.88
8. Brown seaweeds (ISSCAAP group)	Aquatic plants	1	1.0	85 317	0.58	0.49
9. Characins (Characiformes)	Freshwater fishes	1	1.0	64 131	0.44	16.46
10. Snakeheads (Channidae)	Freshwater fishes	3	2.0	53 753	0.37	7.81
Other species		*74*	*n.a.*	*110 731*	*0.76*	*n.a.*
Aquatic products		**116**	**6.7**	**14 606 534**	**100.00**	**11.59**

Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishstatJ); www.fao.org/fishery/en/statistics/software/fishstatj

Notes: ASFIS = Aquatic Sciences and Fisheries Information System. www.fao.org/fishery/collection/asfis/en. ISSCAAP (International Standard Statistical Classification of Aquatic Animals and Plants) grouping can be found at www.fao.org/tempref/FI/DOCUMENT/cwp/handbook/annex/AnnexS2listISSCAAP2000.pdf. The taxonomic scope of WAPI species groups indicated in bracket. More information about the WAPI species grouping can be found at www.fao.org/3/cb5012en/cb5012en.pdf. "Effective Number of Species" as a diversity measure is discussed in FAO Fisheries and Technical Paper 605 - Benchmarking Species Diversification in Global Aquaculture. www.fao.org/3/cb8335en/cb8335en.pdf.

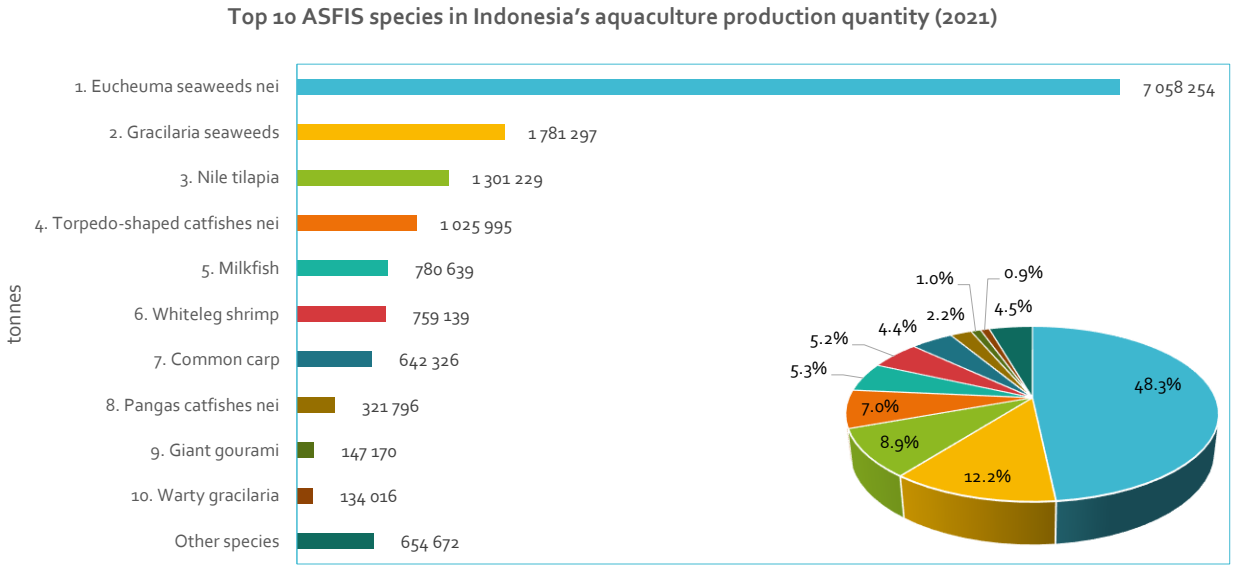
Marine shrimps and prawns accounted for around one third of Indonesia's aquaculture production value. Red seaweeds accounted for 14.29 percent of the production value, despite its 61.66 percent share in production tonnage.

Aquaculture species groups by production value		Indonesia (all areas; value; 2021)				
WAPI species group	ISSCAAP division	Number of ASFIS species items in the group farmed by the country		The country's aquaculture production value of each species group (farmgate value; USD 000)	Share of the country's aquaculture production value of all species (%)	Share of world aquaculture production value of the same species group (%)
		Total	Effective			
1. Marine shrimps and prawns (ISSCAAP group)	Crustaceans	6	1.8	4 406 983	32.05	9.94
2. Tilapias and other cichlids (ISSCAAP group)	Freshwater fishes	2	1.1	2 311 362	16.81	17.81
3. Red seaweeds (ISSCAAP group)	Aquatic plants	4	1.7	1 964 890	14.29	27.75
4. Catfishes (Siluriformes)	Freshwater fishes	8	1.9	1 670 026	12.15	16.73
5. Carps, barbels and other cyprinids (ISSCAAP group)	Freshwater fishes	11	1.4	1 301 064	9.46	1.99
6. Milkfish (Chanidae)	Diadromous fishes	1	1.0	1 076 685	7.83	47.95
7. Gouramies (Anabantoidei)	Freshwater fishes	5	1.4	406 607	2.96	69.75
8. Snakeheads (Channidae)	Freshwater fishes	3	2.1	144 531	1.05	7.22
9. Marine perch-like fishes (Percoidea, marine)	Marine fishes	25	6.6	129 170	0.94	1.87
10. Characins (Characiformes)	Freshwater fishes	1	1.0	73 229	0.53	8.83
Other species		*50*	*n.a.*	*265 440*	*1.93*	*n.a.*
Aquatic products		**116**	**11.1**	**13 749 986**	**100.00**	**4.64**

Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishstatJ); www.fao.org/fishery/en/statistics/software/fishstatj

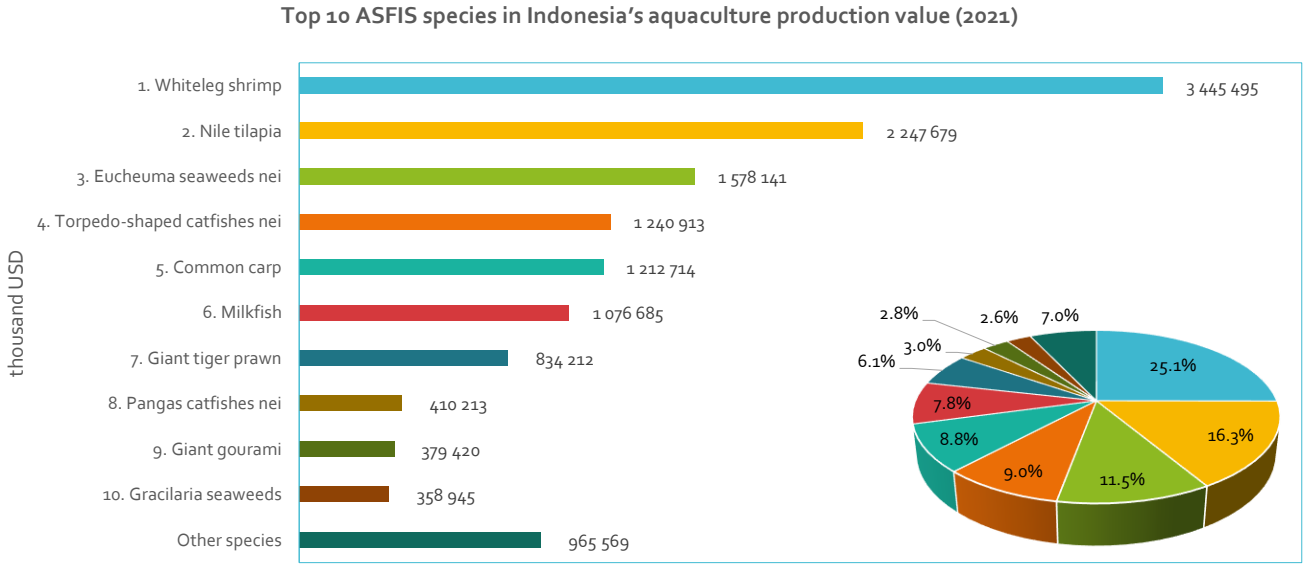
Notes: ASFIS = Aquatic Sciences and Fisheries Information System. www.fao.org/fishery/collection/asfis/en. ISSCAAP (International Standard Statistical Classification of Aquatic Animals and Plants) grouping can be found at www.fao.org/tempref/FI/DOCUMENT/cwp/handbook/annex/AnnexS2listISSCAAP2000.pdf. The taxonomic scope of WAPI species groups indicated in bracket. More information about the WAPI species grouping can be found at www.fao.org/3/cb5012en/cb5012en.pdf. "Effective Number of Species" as a diversity measure is discussed in FAO Fisheries and Technical Paper 605 - Benchmarking Species Diversification in Global Aquaculture. www.fao.org/3/cb8335en/cb8335en.pdf.

Indonesia (2021): Farmed ASFIS species items ranked by quantity



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj
Notes: The common and scientific names of a species follow the names adopted in the database. Nei = not elsewhere included. Species item less than 1 percent of total production may not be labelled in the pie chart. ASFIS = Aquatic Sciences and Fisheries Information System. www.fao.org/fishery/collection/asfis/en

Indonesia (2021): Farmed ASFIS species items ranked by value



Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj
Notes: The common and scientific names of a species follow the names adopted in the database. Nei = not elsewhere included. Species item less than 1 percent of total production may not be labelled in the pie chart. ASFIS = Aquatic Sciences and Fisheries Information System. www.fao.org/fishery/collection/asfis/en

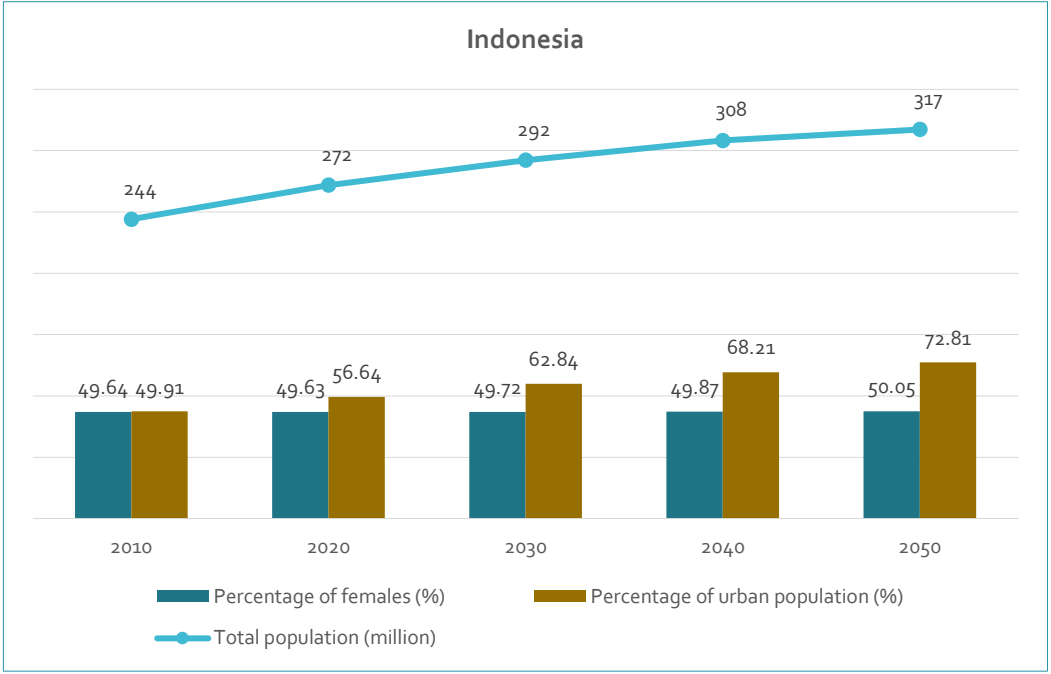
Outlook

Population prospects in Indonesia (2010–2050):

Total population is expected to increase from 272 million in 2020 to 317 million in 2050.

The ratio of urban population is expected to surpass 70 percent in 2050.

The female ratio is expected to gradually increase and exceed 50 percent in 2050

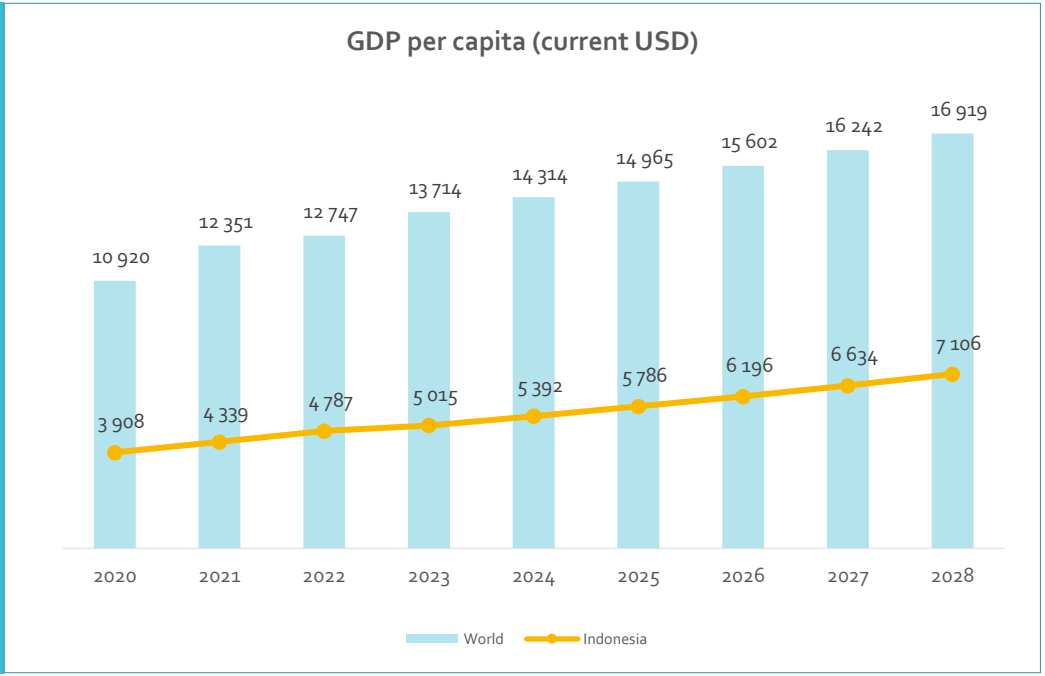


Data sources: United Nations World Population Prospects (2022 revision; https://esa.un.org/unpd/wpp/Download/Standard/Population). United Nations World Urbanization Prospects (2018 revision; https://population.un.org/wup).

Indonesia's GDP prospects (2020-2028):

According to IMF's projection, Indonesia's GDP per capita is expected to increase from USD 3 908 to USD 7 106 between 2020 and 2028.

The 82 percent growth is higher than the world average (55 percent growth from USD 10 920 to USD 16 919).



Data sources: Per capita GDP equal to total GDP from IMF World Economic Outlook Database (April 2023; https://www.imf.org/external/pubs/ft/weo/2019/01/weodata/download.aspx) divided by population from UN World Population Prospects (2022 Revision; https://esa.un.org/unpd/wpp/Download/Standard/Population).

Indonesia (2020–2030): Aquaculture growth potential from a demand-side perspective

Indonesia	Baseline (2020)	Projection to 203	
		Year 2030	2030 compared to baseline
1. Per capita fish demand (kg/capita/year)	45.09	45.09	-
2. Population (thousand)	271 858	292 150	20 292
3. Total fish demand (tonnes)	12 256 969	13 171 858	914 889
4. Fish supply from aquaculture (tonnes)	5 226 594	7 072 281	1 845 686
5. Supply-demand gap (tonnes)			**930 797**

Notes: Fish and seafood includes finfish, crustaceans, molluscs and miscellaneous aquatic animals. 1. Indonesia's per capita fish and seafood consumption in 2020 baseline is assumed to be the same as the level in 2019 (45.09 kg). 2. Population data from UN World Population Prospects (2022 revision). 3. Equal to (1) x (2). 4. According to FAO Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishstatJ), Indonesia's aquaculture production increased from 4 342 465 tonnes in 2015 to 5 515 208 tonnes in 2021. Following the linear trend during 2015–2021, the country's aquaculture production would reach 7 072 281 tonnes in 2030, 1 845 686 tonnes higher than the 5 226 594 tonnes in 2020. 5. Equal to (4)–(3).

- Given the 45.09 kg baseline per capita fish and seafood consumption, 13 171 858 tonnes of fish and seafood will be needed to satisfy the demand of Indonesia's 292 150 thousand total population in 2030, which is 914 889 tonnes higher than its 12 256 969 tonnes of baseline fish and seafood demand in 2020 when the population was 271 858 thousand.
- Indonesia's aquaculture production of fish and seafood (excluding aquatic plants) increased from 4 342 465 tonnes in 2015 to 5 515 208 tonnes in 2021. Following this trend linearly, the country's aquaculture production would reach 7 072 281 tonnes in 2030. The 1 845 686 tonnes of extra supply compared to the baseline would be 930 797 tonnes more than the 914 889 tonnes of extra fish and seafood demand driven by population growth.
- Using the 1 845 686 tonnes of trend aquaculture growth for domestic consumption could increase Indonesia's per capita fish and seafood consumption to 48.27 kg in 2030.

Indonesia: Aquaculture growth potential from a supply-side perspective

- Indonesia's share in world aquaculture production tonnage (11.59 percent):
  - **higher than** its share in world land area (1.43 percent).
  - **higher than** its share in world population (3.46 percent).
- Indonesia's share in world inland aquaculture production (6.48 percent):
  - **higher than** its share in world surface area of inland waterbodies (1.12 percent).
  - **higher than** its share in world renewable water resources (3.69 percent).
- Indonesia's share in world marine aquaculture production (15.71 percent):
  - **higher than** its share in world coastline length (6.79 percent).
- While the comparisons provide some general idea of the aquaculture growth potential based on the country's natural resource endowments, they only offer a rough indication. More comprehensive assessments are necessary to determine the suitability and availability of these resources for aquaculture development.

Indonesia	Share of world total (%)
Total country area (excluding coastal waters, 2020)[1]	1.43
Surface area of inland waterbodies (2020)[2]	1.12
Coastline length (2019)[3]	6.79
Total renewable water resources (2020)[1]	3.69
Population (2021)[4]	3.46
Aquaculture production (all areas, 2021)[5]	**11.59**
Aquaculture production (inland waters, 2021)[5]	**6.48**
Aquaculture production (marine areas, 2021)[5]	**15.71**

Data sources: 1. FAO AQUASTAT main country database (November 2020; downloaded on 29 April, 2023). 2. FAOSTAT Land Cover database (CCI_LC; excluding Antarctica and several uninhabited islands; updated on 15 July, 2022; downloaded on April 29, 2023). 3. The World Factbook, Central Intelligence Agency (CIA), United States of America. Website accessed on 20 May 2019; coastline length of world equal to the sum of coastline length of 265 countries and territories listed in the data source. 4. United Nations World Population Prospects (2022 revision). 5. FAO. 2023. FAO Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ).

Further reading

FAO FISHERIES DIVISION NASO/ NALO FACTSHEETS:

- The National Aquaculture Sector Overview (NASO) collection provides a general overview of the aquaculture sector at national level in a concise and comprehensive product. The NASOs contain detailed information on the history of aquaculture; its human resources and farming systems; and development trends and issues, among others. More than 100 NASO factsheets are available in five languages at: www.fao.org/fishery/en/naso/search
- The National Aquaculture Legislation Overview (NALO) consist of a series of comparative national overviews of aquaculture laws and regulations from the top 40 aquaculture producing countries. NALO factsheets have been prepared in collaboration with the FAO Development Law Service and are updated on a regular basis. The NALO collection is available in several languages at: www.fao.org/fishery/en/nalo/search

MORE INFORMATION ON WAPI:

- World Aquaculture Performance Indicators (WAPI) is a process to generate information and knowledge products for evidence-based policymaking and sector management. Key WAPI information/ knowledge products include data analysis tools, technical papers and policy briefs. For more details, visit our webpage at: www.fao.org/fishery/en/statistics/software/wapi
- World Aquaculture Performance Indicators (WAPI) banner: www.fao.org/3/CA0198EN/ca0198en.pdf
- *World Aquaculture Performance Indicators (WAPI) – Information, Knowledge and Capacity for Blue Growth* (brochure): www.fao.org/3/I9622EN/i9622en.pdf
- *The Potential of World Aquaculture Performance Indicators as a Research and Educational Tool* (FAN article, April 2017): www.fao.org/3/a-i7171e.pdf#page=44
- *Report of FAO Expert Workshop on Assessment and Monitoring of Aquaculture Sector Performance, Gaeta. Italy, 5–7 November 2012* (FAO Fisheries and Aquaculture Report 1063): www.fao.org/3/a-i3539e.pdf