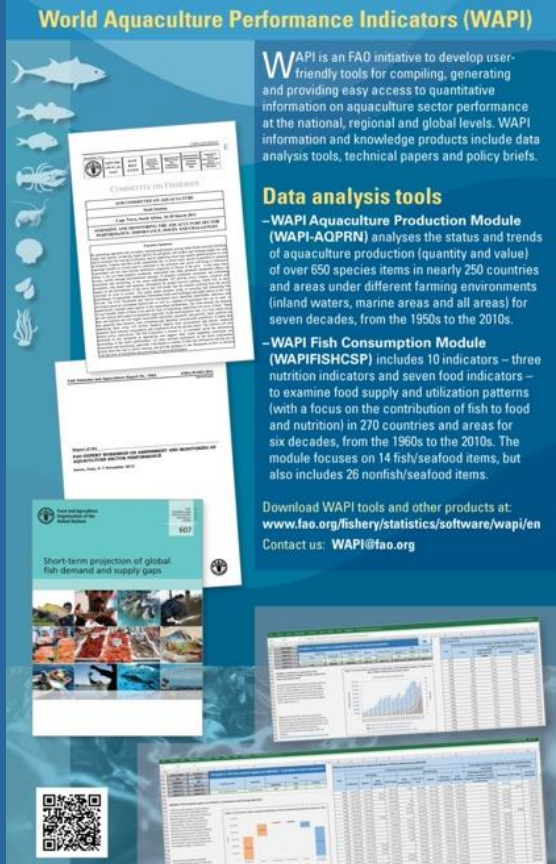
Food and Agriculture Organization of the United Nations

Aquaculture growth potential in Madagascar

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 Madagascar. 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 Madagascar is listed in Africa and the sub-region of Eastern Africa.
- 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 75 or visit the WAPI webpage for more information about WAPI information and knowledge products.
- The factsheet was prepared by Junning Cai, Xue Yan, and Xiaowei Zhou. 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 – Madagascar

- 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.
- While many countries lack a national statistics system for collection of aquaculture production data on a regular basis for dissemination and for reporting to FAO, Madagascar is among the 24 countries or territories in Africa that reported aquaculture production data to FAO in all the five years during 2013–2017.
- 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 Madagascar increased from 7 980 tonnes in 2000 to 16 396 tonnes in 2021. The 3.49 percent annual growth was lower than sub-regional, regional, and world averages (slide 61).
- Inland production accounted for 31.1 percent of Madagascar's aquaculture production in 2000 (slide 63); the share declined to 8.1 percent in 2021, as compared to 73.8 percent of inland aquaculture share in Eastern Africa and 44.7 percent in the world (slide 64). While seaweed accounted for 71.1 percent of Madagascar's aquaculture production quantity in 2021, it share in the production value was only 5 percent (slides 67-68). In contrast, giant tiger prawn accounted for 20.6 percent of the production quantity while contributed 79.1 percent of the production value (slides 67-68).

Supply-side perspective

- Madagascar's 0.013 percent share of world aquaculture production tonnage in 2021 was smaller than its 0.37 percent share in world population and its 0.44 percent share in world land area. The country's 0.0024 percent share in world inland aquaculture production was smaller than its 0.13 percent share in world surface area of inland waterbodies and its 0.62 percent share in world renewable water resources. Its 0.0216 percent share in world aquaculture production in marine areas was smaller than its 0.6 percent of the world coastline length (slides 9-10; slide 73).
- Total fisheries production in Madagascar increased from 17 900 tonnes in 1950 to 189 946 tonnes in 2017, then declined to 130 333 tonnes in 2021.The trends primarily reflected capture fisheries production, yet the contribution of aquaculture became more visible in the new millennium (slide 49). Aquaculture production in Madagascar increased from less than half a thousand tonnes in 1990 to 23 thousand tonnes in 2015 yet declined to 16 thousand tonnes in 2021. The share of aquaculture in total fisheries production increased from less than half a percent to 16.5 percent then declined to 12.6 percent (slide 62).
- Madagascar's import of aquatic products increased from USD 6.745 million in 2000 to USD 34.348 million in 2021; the 8.06 percent annual growth was lower than sub-regional and regional averages yet higher than the world average (slide 42).

Highlights (II)

Demand-side perspective

- Madagascar is a low-income country with an increasingly urbanized economy and a growing population (slides 9-12; slides 70-71). The life expectancy at birth of its population (65.2 years) was higher than sub-regional and regional averages yet lower than the world average (slide 17). The country faces challenges with a higher prevalence of undernourishment, child stunting, and women's anemia compared to subregional, regional, and/or world averages (slide 14).
- Madagascar's per capita total protein intake in 2020 was lower than regional and world averages (slide 16). So was its per capita animal protein intake (slide 20). The share of fish and seafood in its total protein intake (2.8 percent) was lower than both regional and world averages, while fish and seafood share in its animal protein intake (20.1 percent) was higher (slide 20).
- Madagascar's per capita fish and seafood consumption declined from 7.3 kg in 2007 to 4 kg in 2019, which ranked the 10th in Eastern Africa and the 40th in Africa (slide 25-26). Its consumer preference for fish and seafood was lower than the world average yet higher than the Eastern Africa average, while its preferences for crustaceans, cephalopods and miscellaneous aquatic animals were higher than world averages (slide 29).
- In 2019, 91.9 percent of Madagascar's 119 307 tonnes of food fish & seafood supply from domestic sources were used for its total fish & seafood consumption; the rest 8.1 percent went to net export (slide 22). In 2021, Madagascar was the 4th largest fish exporting country in Eastern Africa. The country's export of aquatic products increased from USD 38.075 million in 2000 to USD 131.369 million in 2021, the 6.07 percent annual growth rate was higher than sub-regional, regional, and world averages. Madagascar's export of aquatic products in 2021 comprised primarily tunas/bonitos/billfishes and shrimps/prawns (slides 34-40).
- Madagascar's population is expected to increase from 28.225 million in 2020 to 35.604 million in 2030, which would need 29 388 tonnes of additional fish & seafood to maintain its per capita fish & seafood consumption at the baseline level (3.98 kg). It would need 146 082 tonnes of extra supply to increase its per capita fish & seafood consumption in 2030 back to 7.26 kg, the level in 2007 (slide 72).
- Madagascar's farmed fish and seafood production (excluding seaweed) declined from 11 293 tonnes in 2007 to 10 933 tonnes in 2017 then further down to 5 466 tonnes in 2020. Assume that the production in 2030 could recover back to the level in 2007; the 5 827 tonnes of extra supply compared to the baseline would nevertheless be insufficient to cover the 29 388 tonnes of extra fish and seafood demand driven by population growth only, let alone the 146 082 tonnes of extra fish and seafood demand driven by the population growth and higher per capita consumption (slide 72).
- Madagascar's farmed fish and seafood production (excluding seaweed) would need to reach 34 854 tonnes in 2030 (6.4 time growth; 20.35 percent annually between 2020 and 2030) in order to generate enough extra supply to cover the 29 388 tonnes extra demand driven by population growth only. The production would need to reach 151 548 tonnes (27.7 times; 39.41 percent annually) in order to cover the 146 082 tonnes of extra demand driven by both the population growth and higher per capita consumption (slide 72).

Resources

Madagascar (2021): 0.013 percent of world aquaculture production; 0.366 percent of world population; a low-income country (4.08 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**
Africa	2 418 844	1.9192	1 394	17.621	1 979	16.02
Sub-Saharan Africa	809 782	0.6425	1 184	14.965	1 640	13.28
Eastern Africa	379 778	0.3013	461	5.830	1 025	8.30
Countries in Eastern Africa, ranked by aquaculture production in 2021						
1. Uganda	138 558	0.1099	46	0.580	936	7.58
2. United Republic of Tanzania	106 482	0.0845	64	0.804	1 100	8.91
3. Zambia	63 355	0.0503	19	0.246	1 137	9.21
4. Kenya	21 825	0.0173	53	0.670	2 082	16.86
5. Madagascar	***16 396***	***0.0130***	***29***	***0.366***	***504***	***4.08***
6. Rwanda	10 313	0.0082	13	0.170	822	6.66
7. Malawi	9 948	0.0079	20	0.251	626	5.07
8. Zimbabwe	5 058	0.0040	16	0.202	2 249	18.21
9. Mozambique	3 200	0.0025	32	0.406	492	3.98
10. Mauritius	2 316	0.0018	1.3	0.016	8 838	71.56
11. Burundi	1 490	0.0012	13	0.159	267	2.16
12. Ethiopia	740	0.0006	120	1.521	825	6.68
13. South Sudan	45	0.0000	11	0.136	553	4.47
14. Réunion	33	0.0000	1.0	0.012	n.a.	n.a.
15. Mayotte	15	0.0000	0.3	0.004	n.a.	n.a.
16. Eritrea	4	0.0000	3.6	0.046	610	4.94

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. Sub-Saharan Africa includes Sudan.

Natural resources in Madagascar: 0.44 percent of world land area (including inland water surface area); 0.13 percent of world inland water surface area; 0.6 percent of world coastline length; 0.62 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]	
	km²	Share of world total (%)	km²	Share of world total (%)	km	Share of world total (%)	Billion m³/year	Share of world total (%)
World	**133 780 390**	**100.00**	**3 494 970**	**100.00**	**805 942**	**100.00**	**54 737**	**100.00**
Africa	30 091 420	22.49	312 064	8.93	40 828	5.07	5 630	10.29
Sub-Saharan Africa	24 338 529	18.19	298 859	8.55	31 517	3.91	5 526	10.10
Eastern Africa	7 028 916	5.25	189 245	5.42	16 537	2.05	1 107	2.02
Countries in Eastern Africa, ranked by aquaculture production in 2021								
1. Uganda	241 550	0.18	37 425	1.07	0	-	60	0.11
2. United Republic of Tanzania	947 300	0.71	60 821	1.74	1 424	0.18	96	0.18
3. Zambia	752 610	0.56	14 042	0.40	0	-	105	0.19
4. Kenya	580 370	0.43	12 472	0.36	536	0.07	31	0.06
5. Madagascar	**587 295**	**0.44**	**4 638**	**0.13**	**4 828**	**0.60**	**337**	**0.62**
6. Rwanda	26 340	0.02	1 615	0.05	0	-	13	0.02
7. Malawi	118 480	0.09	24 242	0.69	0	-	17	0.03
8. Zimbabwe	390 760	0.29	4 472	0.13	0	-	20	0.04
9. Mozambique	799 380	0.60	14 916	0.43	2 470	0.31	217	0.40
10. Mauritius	2 040	0.00	59	0.00	177	0.02	3	0.01
11. Burundi	27 830	0.02	1 995	0.06	0	-	13	0.02
12. Ethiopia	1 136 240	0.85	7 668	0.22	0	-	122	0.22
13. South Sudan	633 910	0.47	1 977	0.06	0	-	50	0.09
14. Réunion			39	0.00				
15. Mayotte			24	0.00				
16. Eritrea	121 630	0.09	590	0.02	2 234	0.28	7	0.01

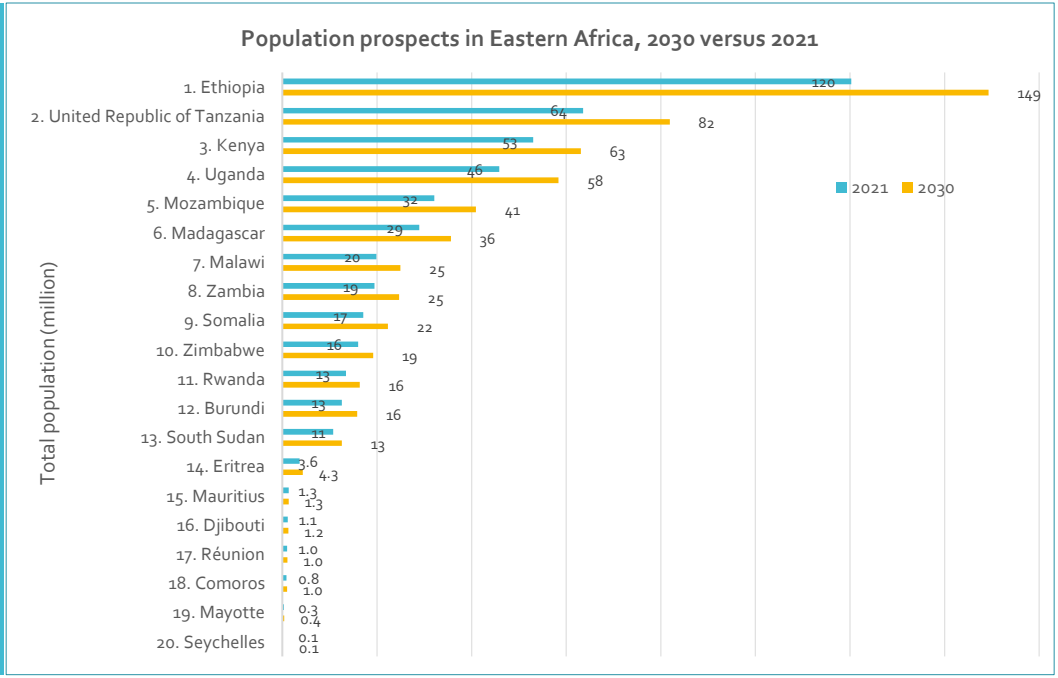
Data sources: 1. FAO AQUASTAT main country database (November 2020; downloaded on 29 April, 2023). 2. FAOSTAT Land Cover database (CCI_LC; updated on 15 July, 2022; downloaded on April 29, 2023). 3. The World Factbook, Central Intelligence Agency (CIA), United States of America. Web accessed on 20 May 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. Sub-Saharan Africa includes Sudan.

Population prospects in Madagascar (2030 versus 2021):

Madagascar is the sixth most populous country in Eastern Africa.

Its population is expected to increase from 29 million in 2021 to 36 million in 2030.



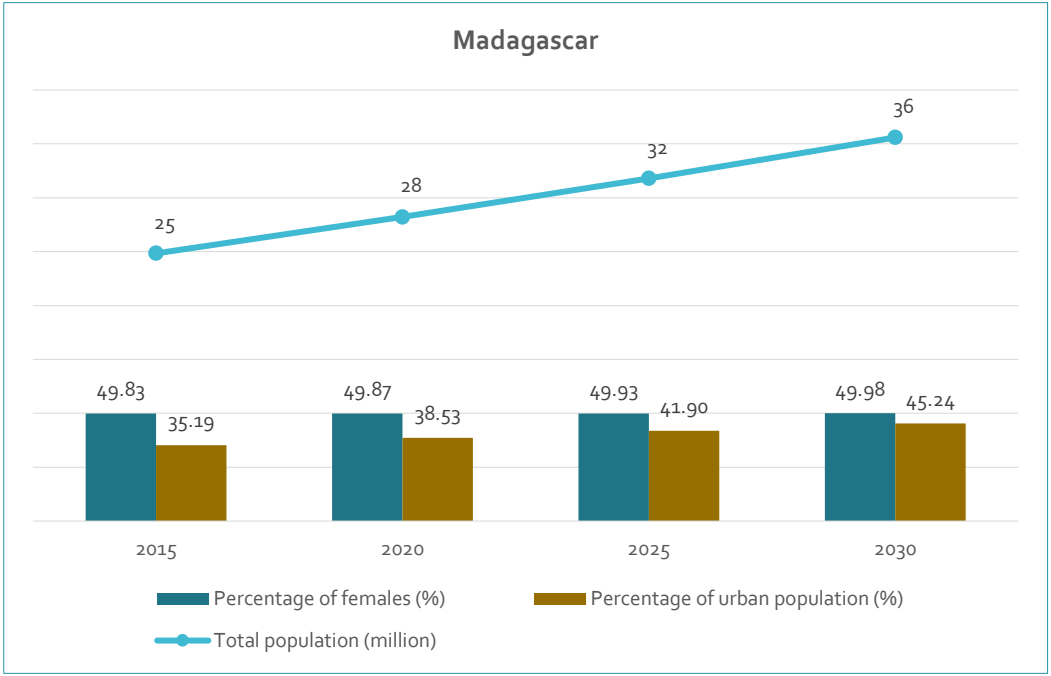
Data source: United Nations World Population Prospects (2022 revision)
https://esa.un.org/unpd/wpp/Download/Standard/Population .

Demographic features in Madagascar (2015–2030):

Population expected to increase from 25 million in 2015 to 36 million in 2030.

Urban ratio of total population expected to increase from 35.19 percent to 45.24 percent.

Female ratio in total population expected to increase slightly yet remain below the 50-percent mark.



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 Madagascar

Prevalence of undernourishment
48.5 percent of prevalence of undernourishment, which was higher than sub-regional, regional and world averages.

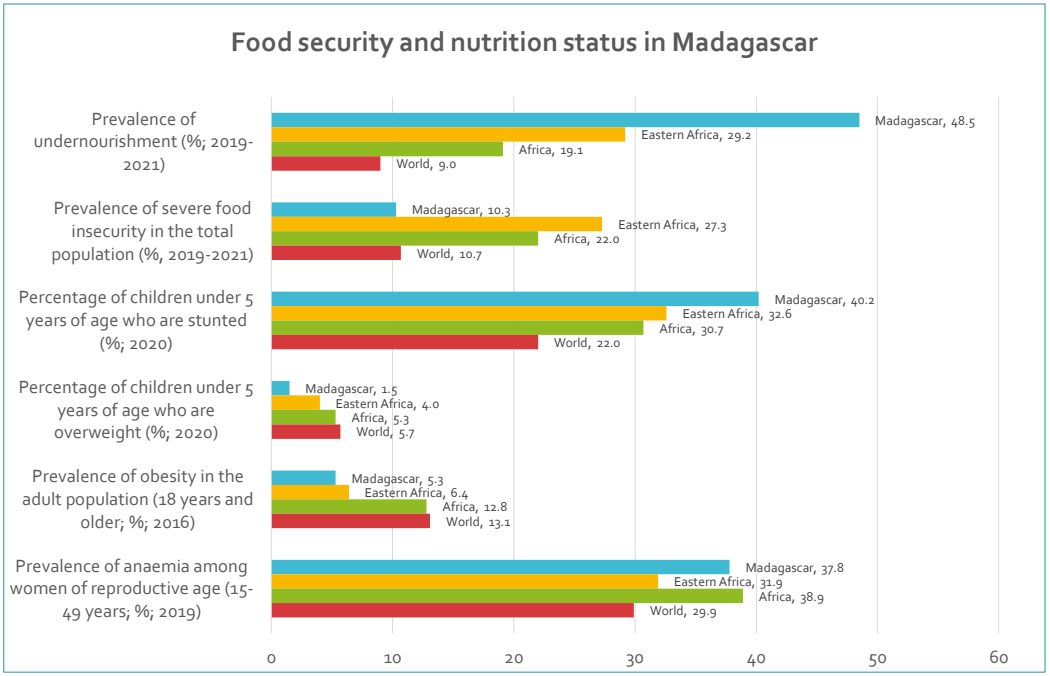
Prevalence of severe food insecurity
10.3 percent of prevalence of severe food insecurity, which was lower than sub-regional, regional and world averages.

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

Overweight children
1.5 percent of children under 5 years of age were overweight, which was lower than sub-regional, regional, and world averages.

Adult obesity
5.3 percent of adult population were obese, which was lower than African and world averages.

Women anaemia
37.8 percent of reproductive-age women were anaemic, which was higher than sub-regional and world averages yet slightly lower than the regional average.



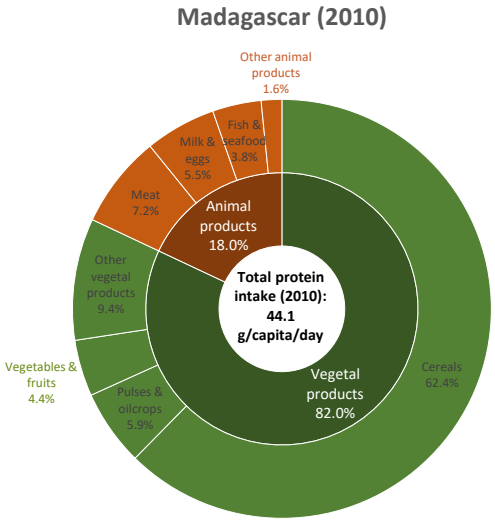
Data source: The chart uses the latest available data in the FAOSTAT – Suite of Food Security Indicators (updated on 7 November, 2022).
www.fao.org/faostat/en/#data/FS

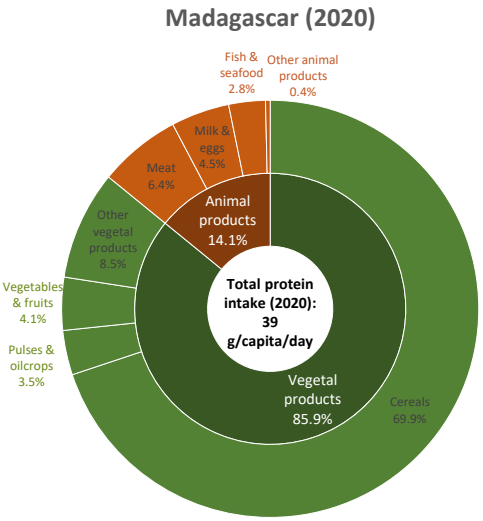
Per capita protein intake in Madagascar (2010 versus 2020):

Per capita total protein intake declined from 44.1 g/day to 39 g/day between 2010 and 2020.

The share of animal protein in total protein intake declined from 18 percent to 14.1 percent.

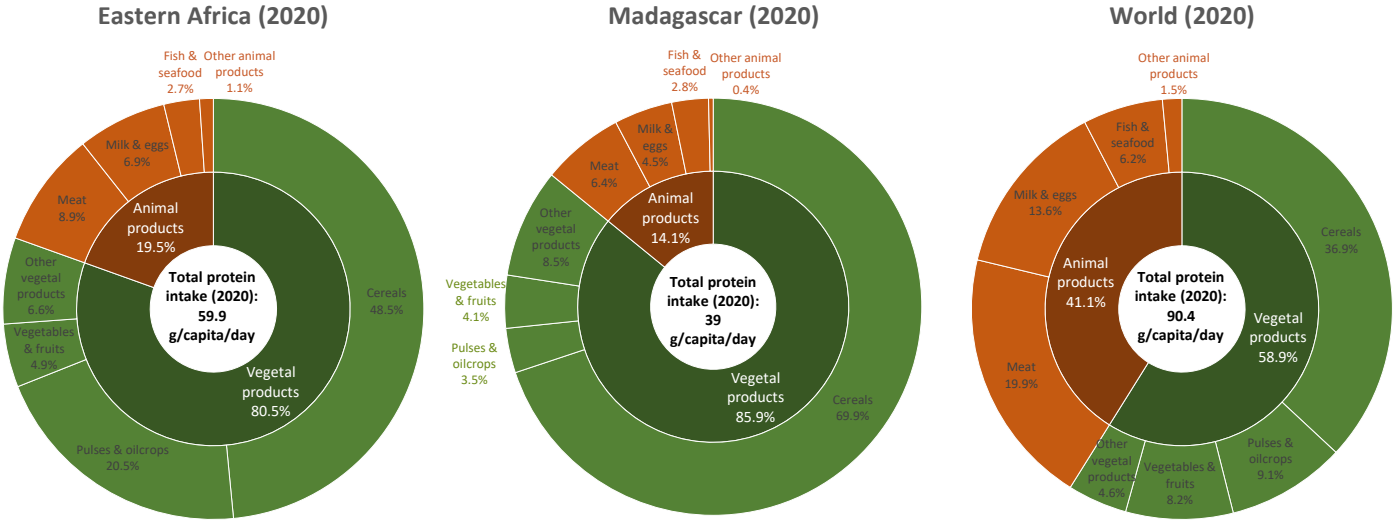
The share of fish & seafood declined from 3.8 percent to 2.8 percent.





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 Madagascar (2020): The 39 g/day of per capita protein intake was lower than subregional and world averages. So were the animal protein share (14.1 percent) and the fish and seafood share (2.8 percent).

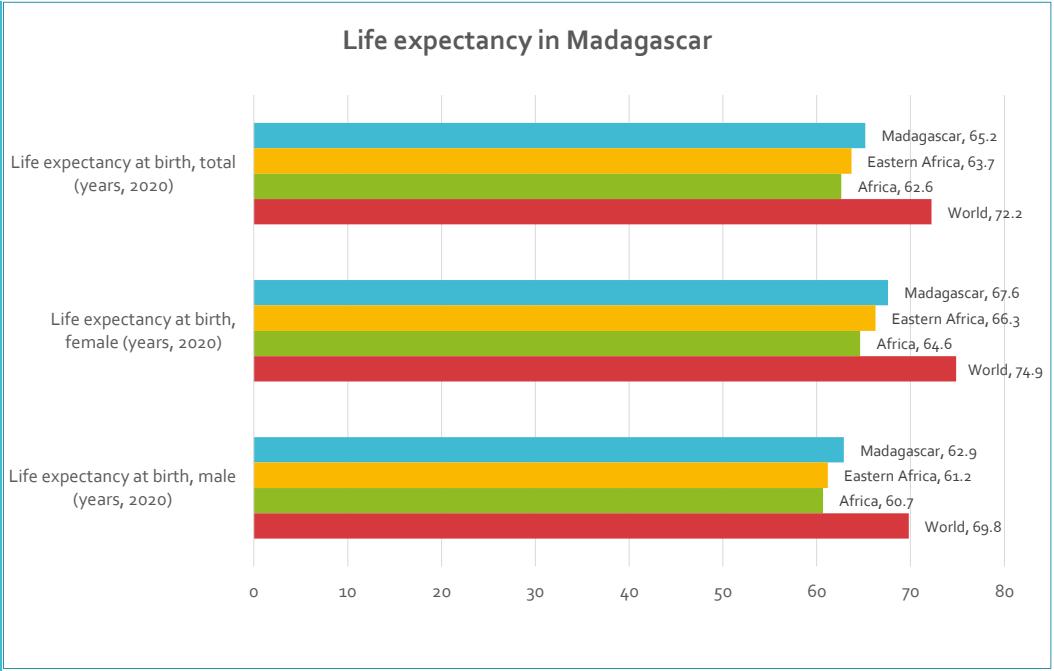


Data source: FAOSTAT New Food Balances (updated on 27 October, 2023; http://www.fao.org/faostat/en/#data/FBS).
Notes: See slide #4 for the scope of fish & seafood. Food items with a small contribution to total protein intake may not be labelled.

Life expectancy in Madagascar (2020):

Life expectancy at birth for the total population was 65.2 years, which was higher than sub-regional and regional averages yet lower than the world average.

Life expectancy for female population (67.6 years) was higher than male population (62.9 years) – a general pattern applying to most countries and areas.



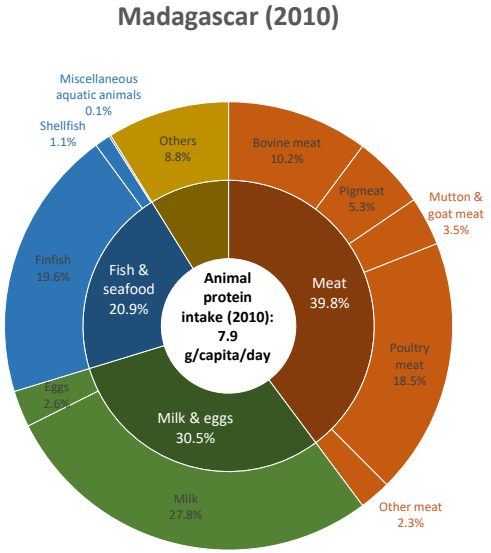
Data source: World Bank World Development Indicators (WDI), downloaded on 25 January, 2023 (http://datatopics.worldbank.org/world-development-indicators/#archives); United Nations World Population Prospects (2022 revision; https://esa.un.org/unpd/wpp/Download/Standard/Population) used to calculate life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

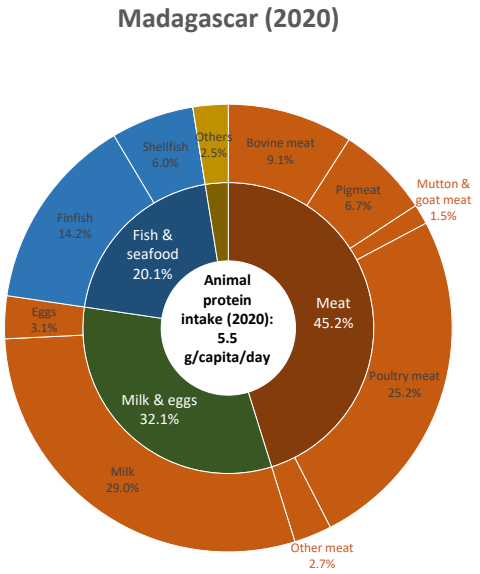
Contribution to food and nutrition

Animal protein intake in Madagascar (2010 versus 2020):

Per capita animal protein intake declined from 7.9 g/day in 2010 to 5.5 g/day in 2020.

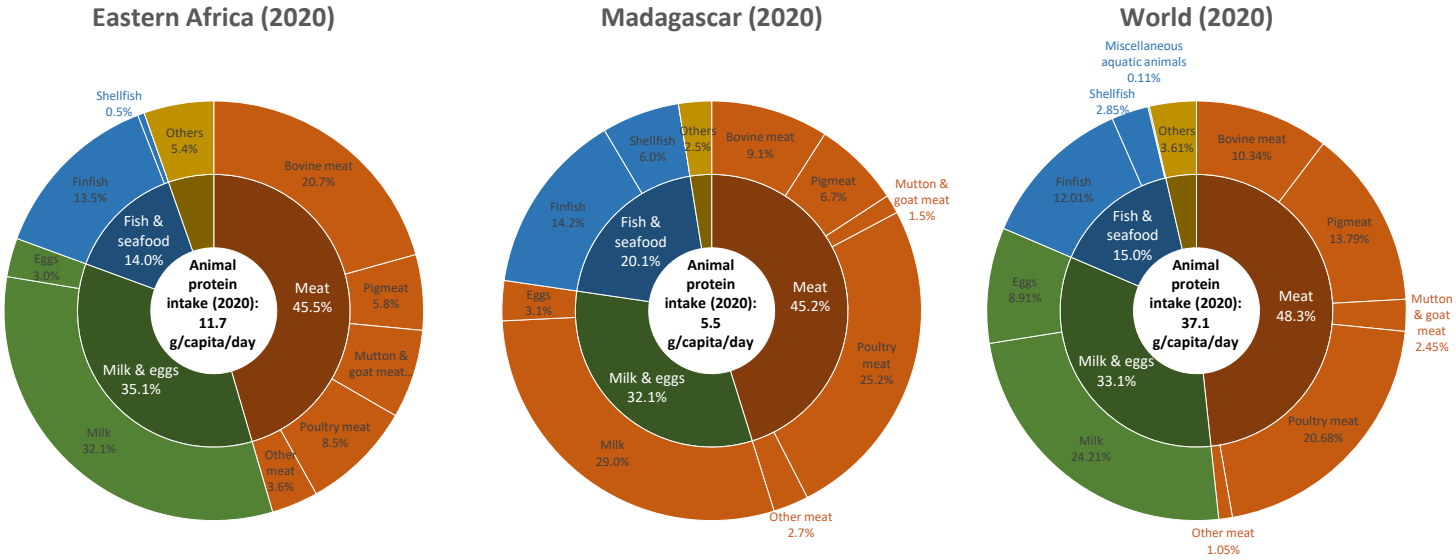
The share of fish & seafood in animal protein intake declined from 20.9 percent to 20.1 percent.





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 Madagascar (2020): The 5.5 g/day of per capita animal protein intake was lower than subregional and world averages. The 20.1 percent fish and seafood share in the country's animal protein intake was nevertheless higher.

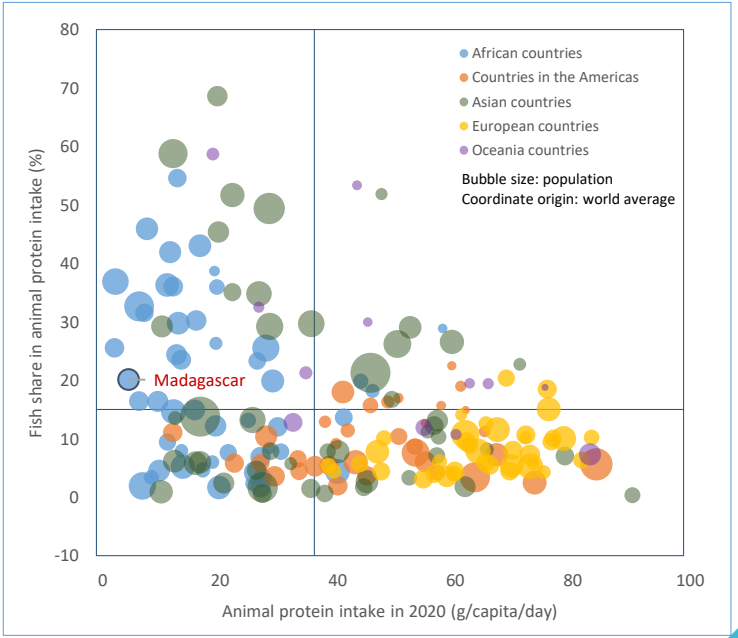


Data source: FAOSTAT New Food Balances (updated on 27 October, 2023; http://www.fao.org/faostat/en/#data/FBS).
Note: See slide #4 for the scope of fish & seafood.

Madagascar (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 and seafood was higher.

Contribution of fish and seafood to animal protein, 2020

Country/area	Per capita protein intake in 2020 (g/capita/day)		Fish and seafood share (%)
	Fish and seafood	Animal products	
World	**5.6**	**37.1**	**15.0**
Africa	2.8	15.8	17.9
Sub-Saharan Africa	2.3	13.3	17.6
Eastern Africa	1.6	11.7	14.0
Countries in Eastern Africa, ranked by animal protein			
1. Seychelles	17.0	58.9	28.9
2. Mauritius	8.6	47.0	18.2
3. South Sudan	0.9	28.3	3.3
4. Zimbabwe	0.5	28.0	1.7
5. Comoros	5.4	20.4	26.3
6. Malawi	2.5	16.7	14.9
7. Kenya	0.8	14.7	5.2
8. Djibouti	1.2	14.5	7.9
9. Zambia	3.3	13.7	24.4
10. United Republic of Tanzania	1.9	13.1	14.6
15. Uganda	4.4	12.1	36.3
12. Mozambique	4.0	8.6	45.9
13. Ethiopia	0.2	7.8	1.9
14. Rwanda	1.2	7.3	16.5
15. Madagascar	***1.1***	***5.5***	***20.1***
16. Burundi	0.8	3.1	25.6



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. Sub-Saharan Africa includes Sudan.

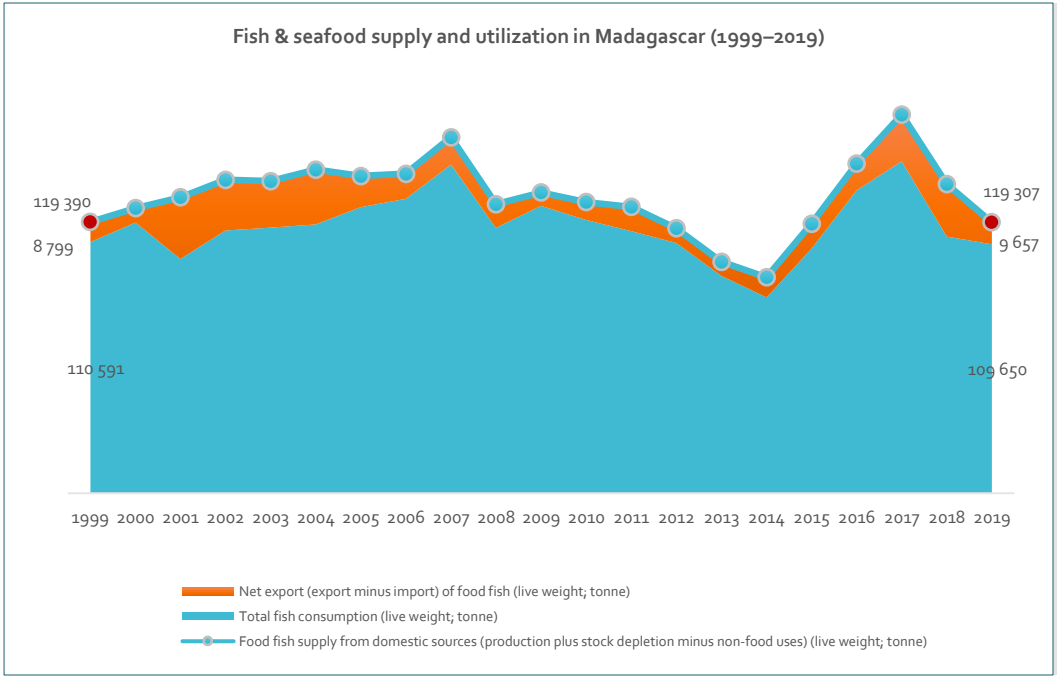
Status and trend of fish & seafood supply and utilization in Madagascar (1999–2019):

Food fish & seafood supply from domestic sources decreased from 119 390 tonnes in 1999 to 119 307 tonnes in 2019.

Total fish & seafood consumption decreased from 110 591 tonnes to 109 650 tonnes.

Net export increased from 8 799 tonnes to 9 657 tonnes.

In 2019, 119 307 tonnes of food fish & seafood supply from domestic sources = 109 650 tonnes of total fish & seafood consumption (91.9 percent) + 9 657 tonnes net export of food fish & seafood (8.1 percent).



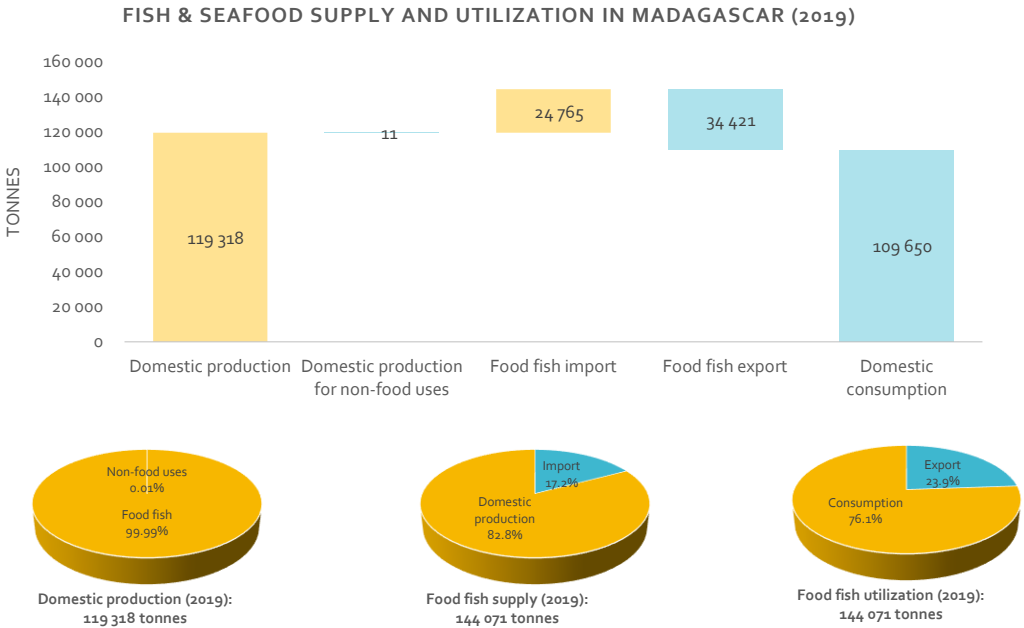
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Note: See slide #4 for the scope of fish & seafood.

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

119 318 tonnes domestic fish & seafood production – 11 tonnes for non-food use (0.01 percent) = 119 307 tonnes domestic food fish & seafood production (99.99 percent).

119 307 tonnes domestic food fish & seafood production (82.8 percent of food fish supply) + 24 765 tonnes of import of food fish & seafood (17.2 percent) = 144 071 tonnes food fish & seafood supply available for utilization.

144 071 tonnes utilization of food fish & seafood = 34 421 tonnes export of food fish & seafood (23.9 percent of food fish & seafood utilization) + 109 650 tonnes domestic (food) fish & seafood consumption (76.1 percent).



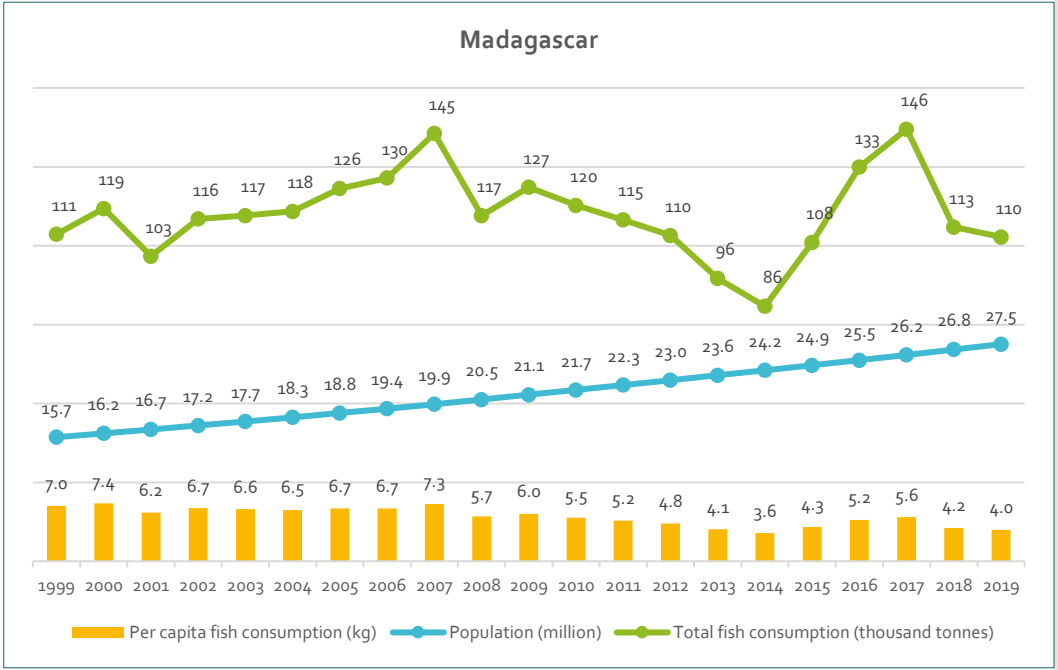
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Note: See slide #4 for the scope of fish & seafood. Numbers may not add up exactly due to rounding.

Domestic market (consumption)

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

Between 1999 and 2014, Madagascar's population increased from 15.7 million to 24.2 million, while its total fish and seafood consumption declined from 111 thousand tonnes to 86 thousand tonnes. Accordingly, its per capita fish and seafood consumption declined from 7 kg to 3.6 kg.

The country's population further increased to 27.5 million in 2019, while its total consumption increased to 110 thousand tonnes. Accordingly, its per capita consumption increased to 4 kg.

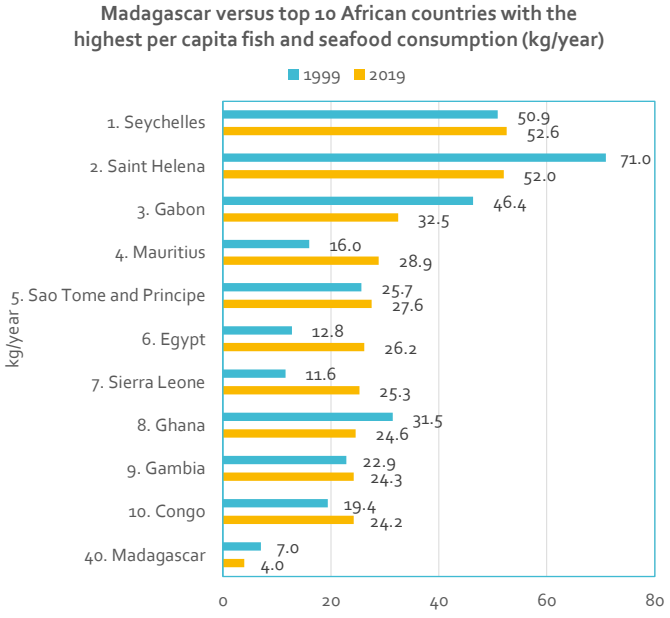


Data source: FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Note: See slide #4 for the scope of fish & seafood.

Between 1999 and 2019, per capita fish & seafood consumption in Madagascar declined from 7 kg to 4 kg (average 2.8 percent annual decline), as opposed to increases in sub-regional, regional, and world average consumption. The country's 4 kg per capital fish and seafood consumption in 2019 was ranked the #10 in Eastern Africa and #40 in Africa.

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**
Africa	7.8	10.0	1.2
Sub-Saharan Africa	7.4	8.3	0.6
Eastern Africa	4.2	5.7	1.6
Western Africa	11.1	11.6	0.2
Southern Africa	6.2	6.5	0.2
Middle Africa	9.1	9.5	0.2
Northern Africa	8.4	16.0	3.3
Top 10 countries in Eastern Africa with the highest per capita fish and seafood consumption in 2019			
1. Seychelles	50.9	52.6	0.2
2. Mauritius	16.0	28.9	3.0
3. Comoros	23.4	18.0	-1.3
4. Uganda	8.7	15.3	2.8
5. Mozambique	1.4	13.9	12.3
6. Zambia	7.4	13.1	2.9
7. Malawi	4.3	10.1	4.3
8. United Republic of Tanzania	8.1	7.1	-0.6
9. Rwanda	0.9	4.6	8.8
10. Madagascar	***7.0***	***4.0***	***-2.8***



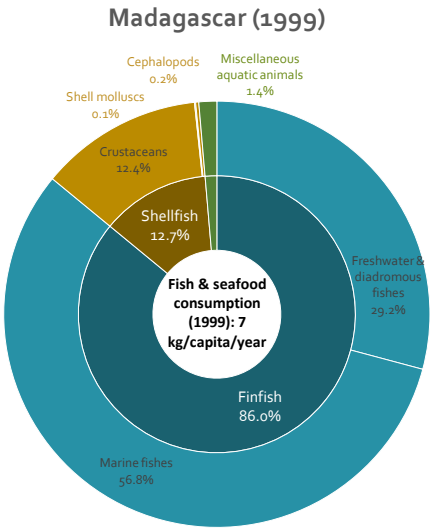
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: See slide #4 for the scope of fish & seafood.

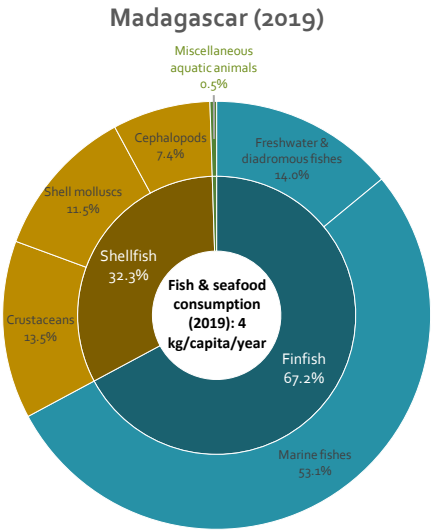
Per capita fish & seafood consumption in Madagascar (1999 versus 2019):

Per capita fish & seafood consumption declined from 7 kg in 1999 to 4 kg in 2019.

The share of finfish declined from 86 percent to 67.2 percent, with declined shares of both marine fishes and freshwater & diadromous.

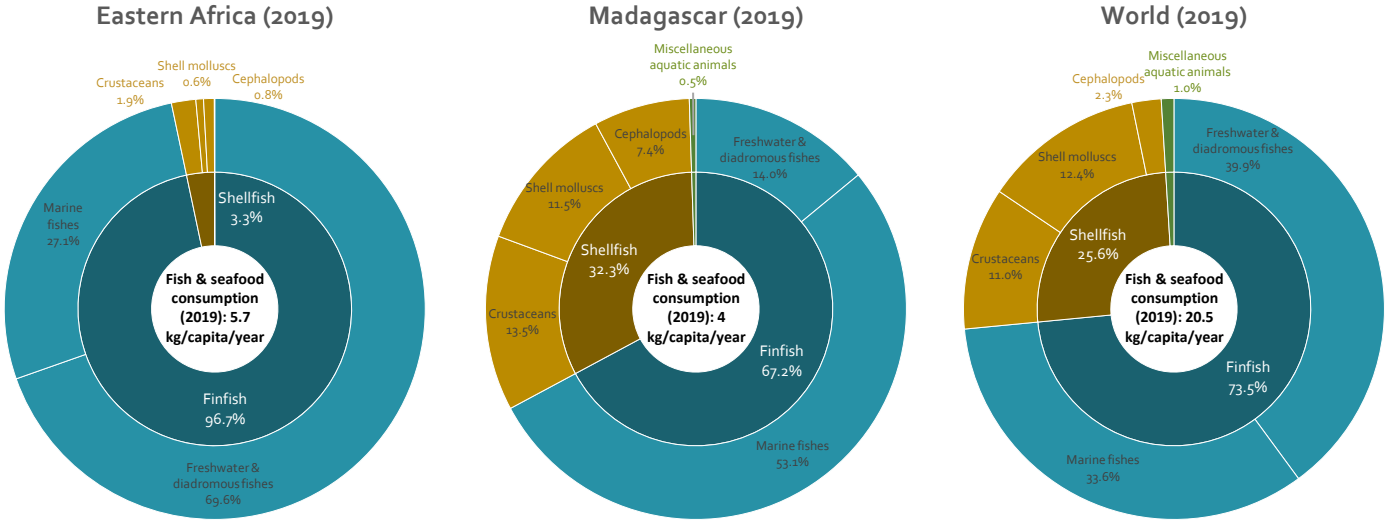
The share of shellfish increased from 12.7 percent to 32.3 percent, primarily reflecting increased shares of shell molluscs and cephalopods.





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.

Madagascar (2019): The 4 kg per capita fish & seafood consumption was lower than subregional and world averages. The taxonomic composition of its finfish consumption was less diverse than the subregional pattern, while that of its shellfish consumption was more diverse.

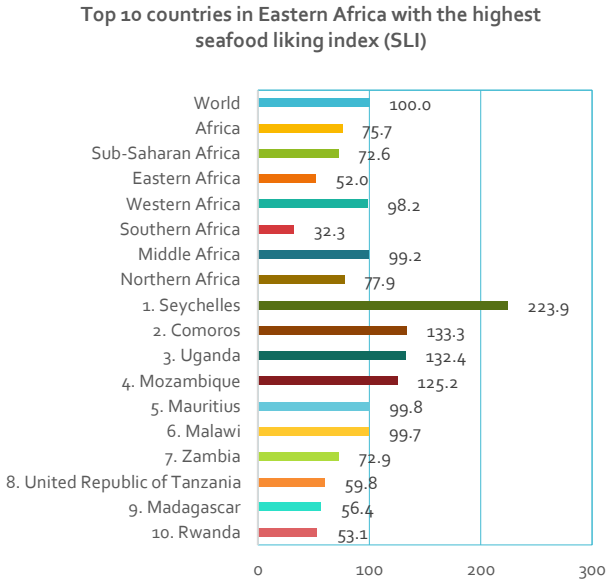


Data source: FAO. 2023. Fishery and Aquaculture Statistics. Food balance sheets of fish and fishery products 1961-2019 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Note: See slide #4 for the scope of fish & seafood.

Madagascar's 56.4 seafood liking index (SLI) in the 2010s indicates that its consumer preference for fish & seafood was lower than the world average. The SLI was also above the sub-regional average (ranked #9 in Eastern Africa), yet lower than the regional average. The country's SLIs for crustaceans, cephalopods, and miscellaneous aquatic animals are above 100, indicating its above-average preferences for these aquafood groups.

Consumer preferences for aquatic foods in Madagascar, 2010–2017

Aquatic foods	Seafood liking index (SLI, 2010-17 average)	Per capita consumption, 2010-17 average	
		kg/year	Ratio to world average (%)
Fish & seafood	**56.4**	**4.91**	**27.1**
Finfish & shellfish	56.4	4.85	27.0
Finfish	61.6	4.27	31.7
Freshwater & diadromous fishes	88.5	1.40	22.1
Marine fishes	95.5	2.87	44.7
Shellfish	90.2	0.58	13.5
Crustaceans	220.6	0.45	28.1
Molluscs	33.8	0.13	5.1
Shell molluscs	78.9	0.07	3.2
Cephalopods	264.2	0.07	16.8
Miscellaneous aquatic animals	119.4	0.05	39.6

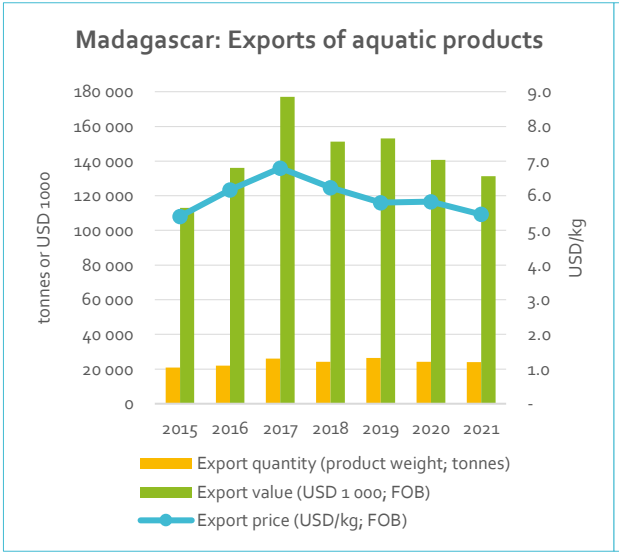


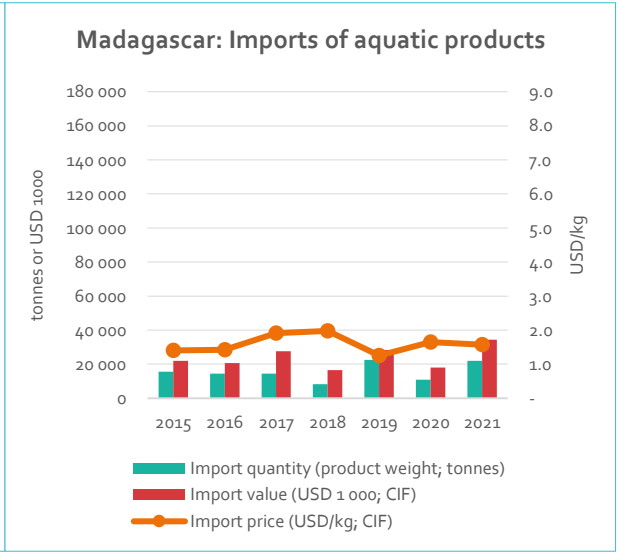
Data source: Cai, J. & Leung, P.S. 2022. Unlocking the potential of aquatic foods in global food security and nutrition: A missing piece under the lens of seafood liking index. *Global food security, 33, 100641*. doi.org/10.1016/j.gfs.2022.100641

Note: SLI = Seafood Liking Index.

International trade

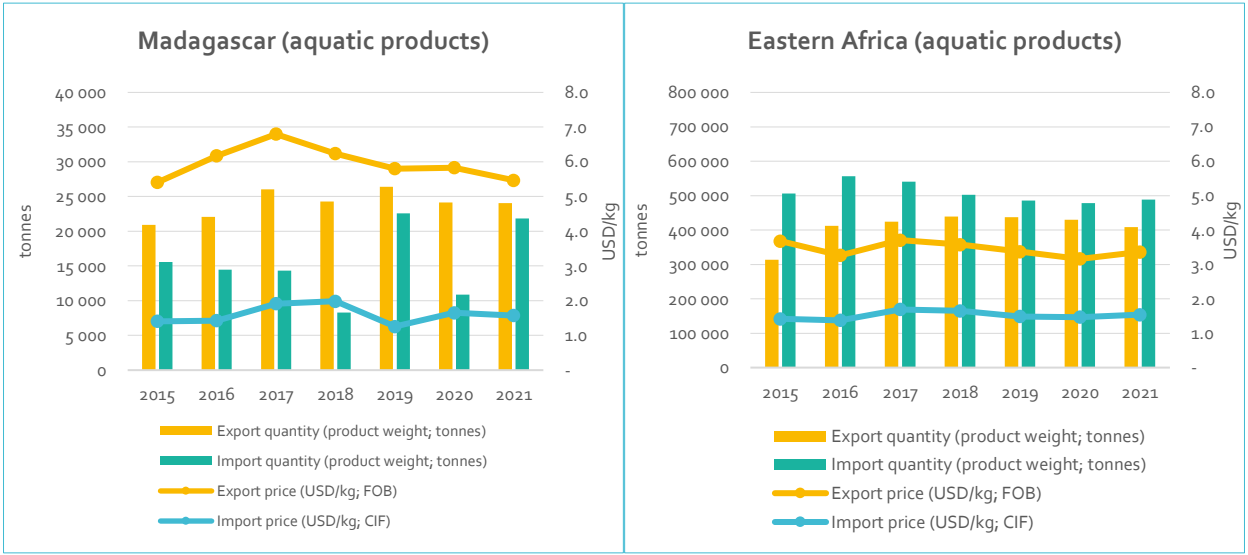
Status and trend of the international trade of aquatic products in Madagascar, 2015–2021





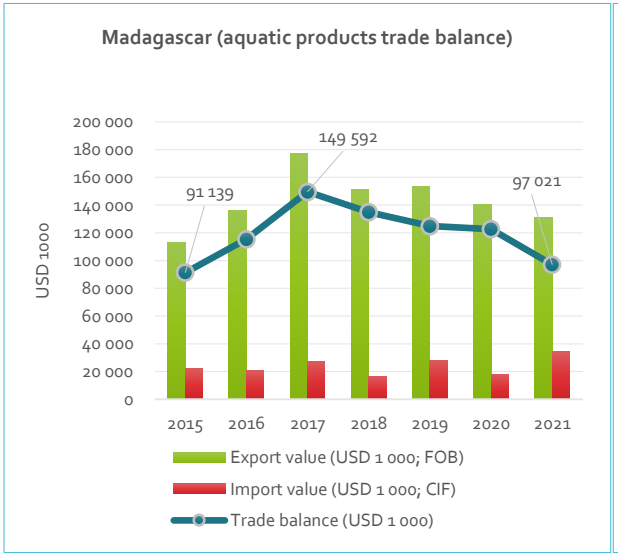
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products.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

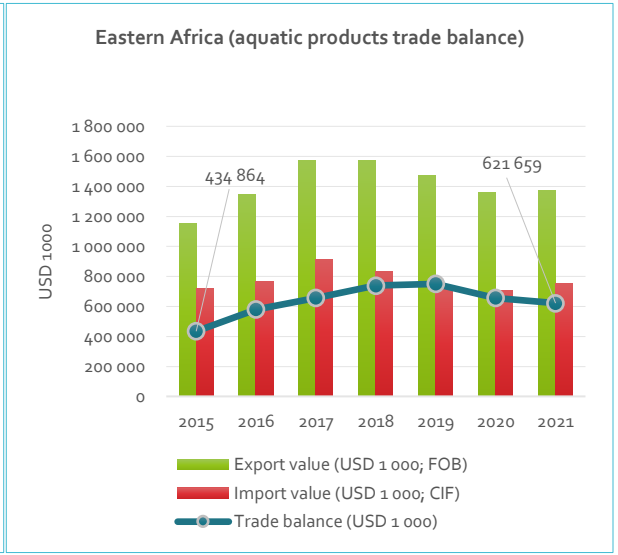
Madagascar (2015–2021): Aquatic products export quantity was greater than import quantity, yet the gap has declined in recent years. In contrast, Africa's export quantity was lower than import quantity. In Madagascar, aquatic export prices were higher than import prices. This was similar to the pattern in Africa, yet the gap was larger in Madagascar.



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.

Madagascar's aquatic trade surplus increased from USD 91.139 million deficit in 2015 to USD 149.592 million in 2017 yet declined to USD 97.021 million in 2021. The trade balance in Africa also increased between 2015 and 2021.





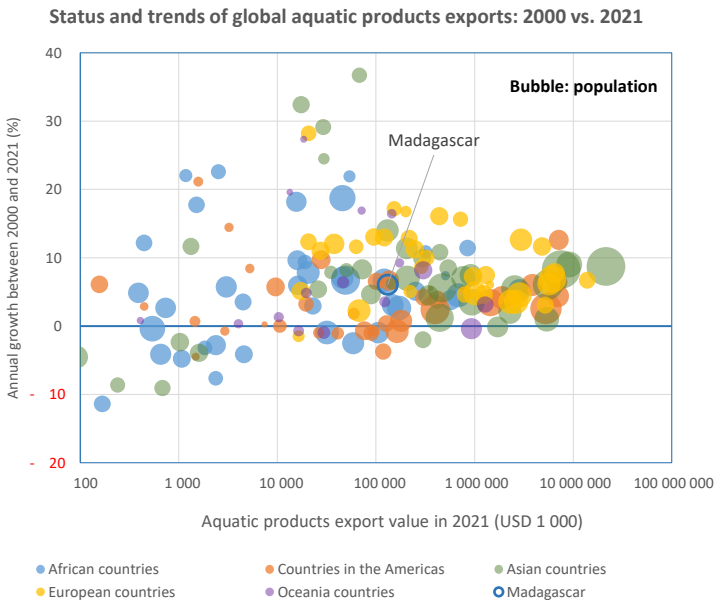
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products.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

Export

In 2021, Madagascar was the 4th largest fish exporting country in Eastern Africa. The country's export of aquatic products increased from USD 38.075 million in 2000 to USD 131.369 million in 2021, the 6.07 percent annual growth rate was higher than sub-regional, 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**
Africa	2 739 300	7 920 221	5.19
Sub-Saharan Africa	1 656 102	4 739 014	5.13
Eastern Africa	466 463	1 375 100	5.28
Countries in Eastern Africa, ranked by export in 2021			
1. Seychelles	113 465	506 511	7.38
2. Mauritius	36 659	318 791	10.85
3. United Republic of Tanzania	99 012	171 187	2.64
4. Madagascar	***38 075***	***131 369***	***6.07***
5. Uganda	30 986	120 944	6.70
6. Mozambique	99 889	58 580	-2.51
7. Kenya	38 874	31 789	-0.95
8. Somalia	2 298	15 870	9.64
9. Zambia	465	15 570	18.20
10. Zimbabwe	4 308	2 376	-2.79
11. Djibouti	18	1 180	22.04
12. Malawi	143	389	4.88
13. Rwanda		324	n.a.
14. Eritrea	2 116	167	-11.38
15. Ethiopia	13	36	4.96
16. Burundi	132	17	-9.26
17. Comoros		0.3	n.a.



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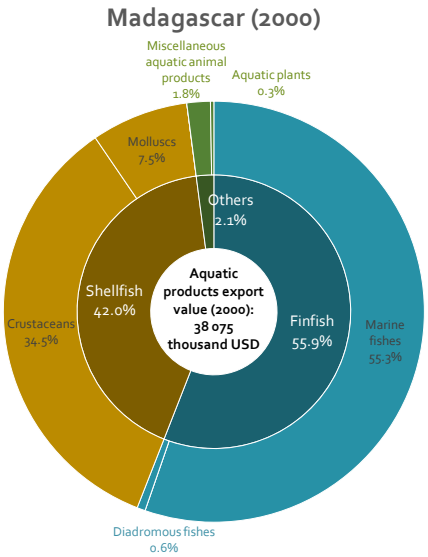
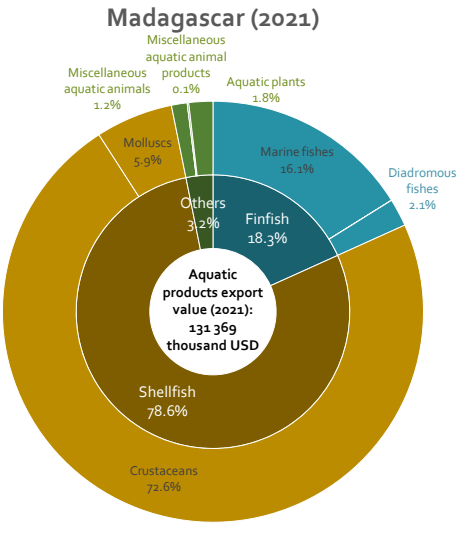
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products.

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

Aquatic commodities export increased from USD 38.075 million in 2000 to USD 131.369 million in 2021, with the share of finfish declined from 55.9 percent to 18.3 percent, with a declined share in marine fishes yet an increased share in diadromous fishes.

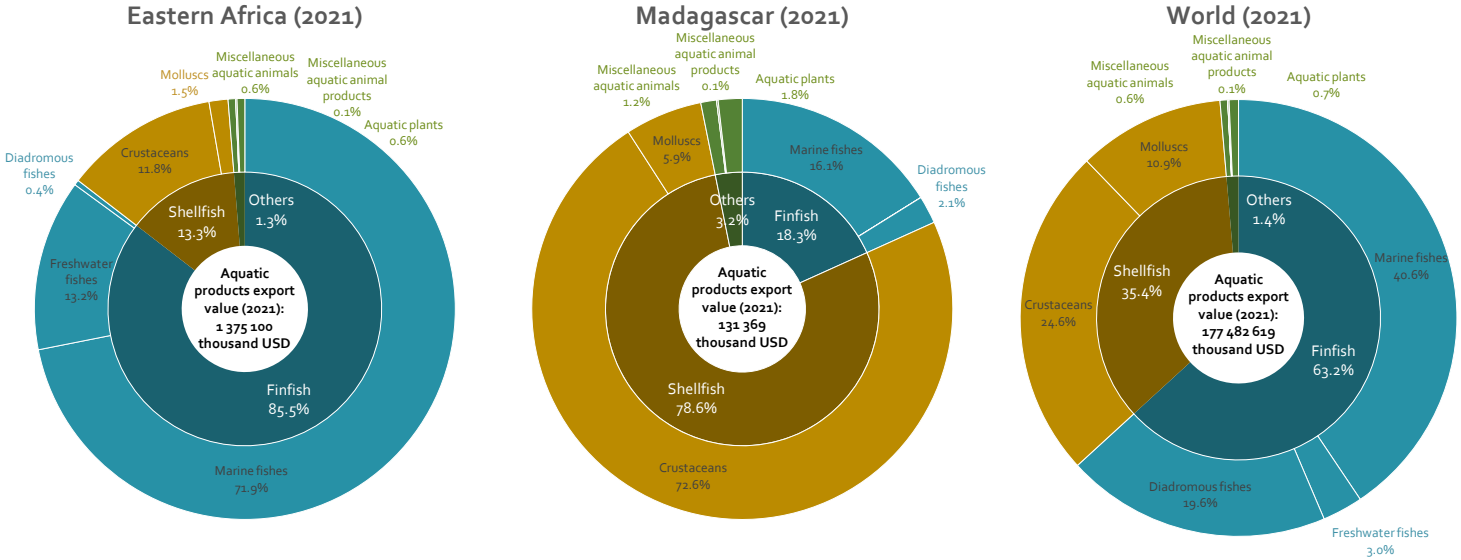
The share of shellfish increased from 42 percent to 78.6 percent, primarily due to increased crustacean share.





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.

Madagascar's export of aquatic products in 2021 primarily comprised crustaceans (72.6 percent), marine fishes (16.1 percent), and molluscs (5.9 percent). The taxonomic composition was less diverse than the world pattern.



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.

Madagascar's export of aquatic products in 2021 comprised primarily tunas/bonitos/billfishes and shrimps/prawns.

Madagascar's aquatic products export, 2021

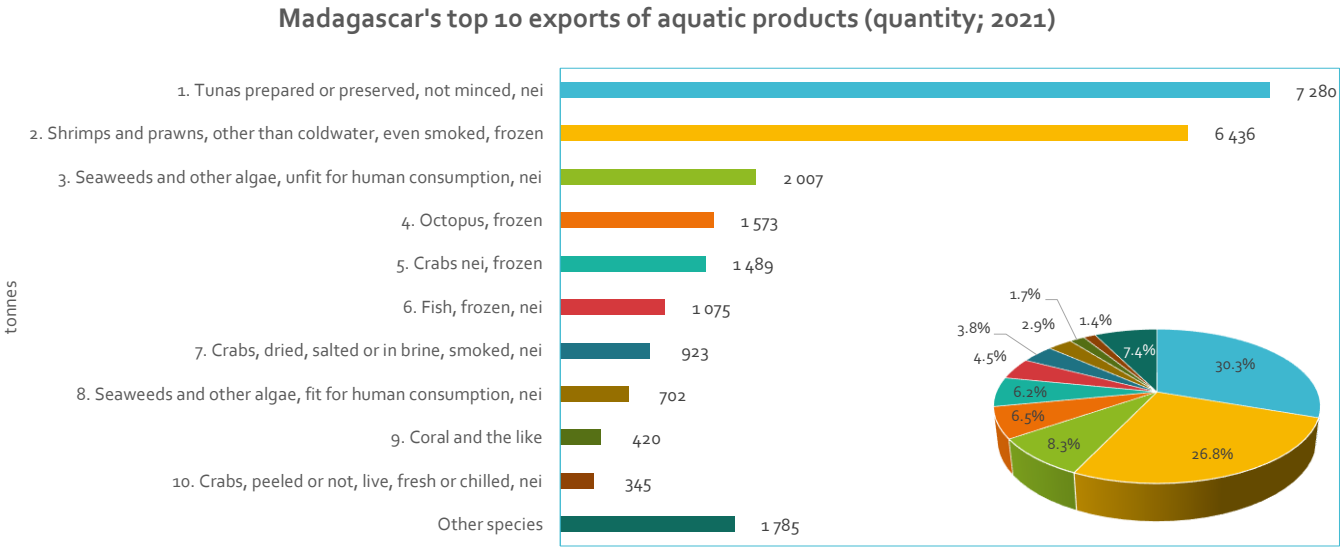
Top 10 export species groups in terms of quantity			
ISSCAAP groups in Madagascar's exports quantity	**Product weight (tonnes)**	**Share of the country's total exports of all aquatic commodities (%)**	**Share of world exports of the same species group (%)**
1. Tunas, bonitos, billfishes	7 515	31.26	0.19
2. Shrimps, prawns	6 436	26.78	0.17
3. Crabs, sea-spiders	2 757	11.47	0.72
4. Miscellaneous aquatic plants	2 709	11.27	0.53
5. Squids, cuttlefishes, octopuses	1 747	7.27	0.07
6. Marine fishes not identified	1 512	6.29	0.02
7. Corals	420	1.75	0.38
8. Lobsters, spiny-rock lobsters	329	1.37	0.14
9. Cods, hakes, haddocks	263	1.10	0.01
10. Miscellaneous aquatic invertebrates	95	0.39	0.10
Others	*252*	*1.05*	-
Aquatic products	**24 035**	**100.00**	**0.06**

Top 10 export species groups in terms of value			
ISSCAAP groups in Madagascar'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	83 940	63.90	0.28
2. Tunas, bonitos, billfishes	16 118	12.27	0.11
3. Squids, cuttlefishes, octopuses	7 406	5.64	0.06
4. Crabs, sea-spiders	6 080	4.63	0.10
5. Lobsters, spiny-rock lobsters	5 274	4.01	0.09
6. Marine fishes not identified	4 415	3.36	0.02
7. Sturgeons, paddlefishes	2 584	1.97	1.45
8. Miscellaneous aquatic plants	2 415	1.84	0.26
9. Sea-urchins and other echinoderms	1 169	0.89	0.17
10. Cods, hakes, haddocks	550	0.42	0.00
Others	*1 418*	*1.08*	-
Aquatic products	**131 369**	**100.00**	**0.07**

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

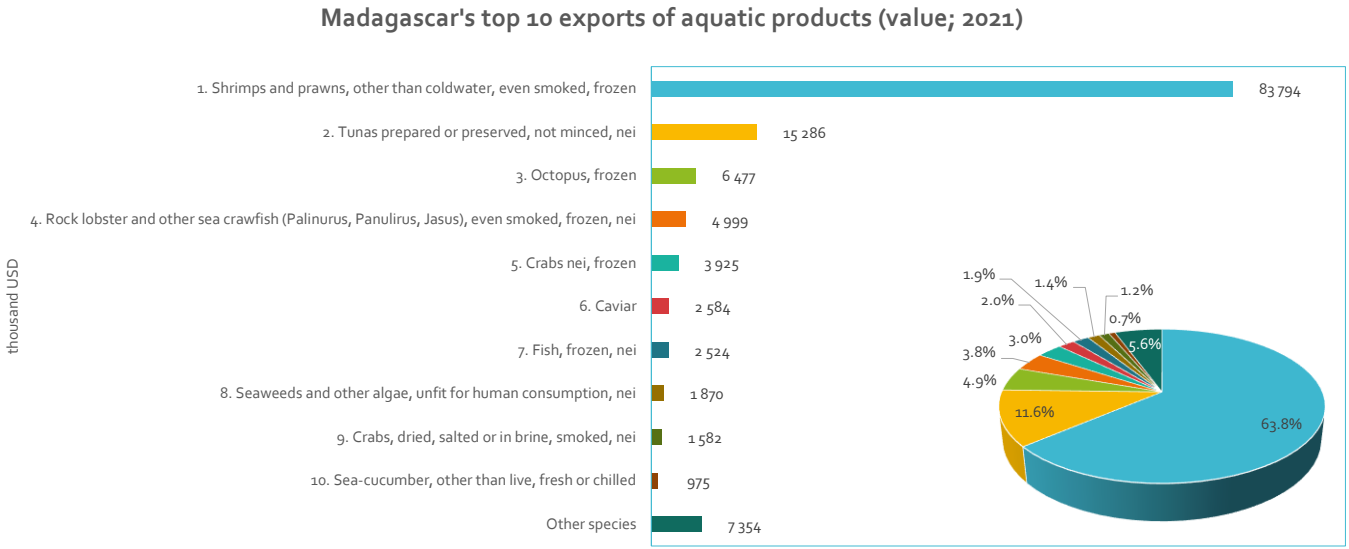
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. FOB = Free on board; ISSCAAP = International Standard Statistical Classification of Aquatic Animals and Plants.

Madagascar'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.

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



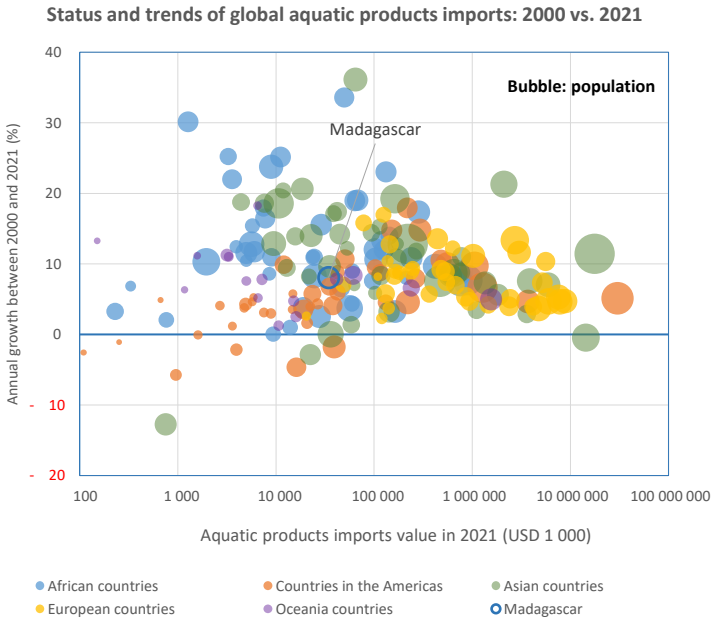
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source. Nei = not elsewhere included.

Import

Madagascar's import of aquatic products increased from USD 6.745 million in 2000 to USD 34.348 million in 2021; the 8.06 percent annual growth was lower than sub-regional and regional averages yet higher than the world average.

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

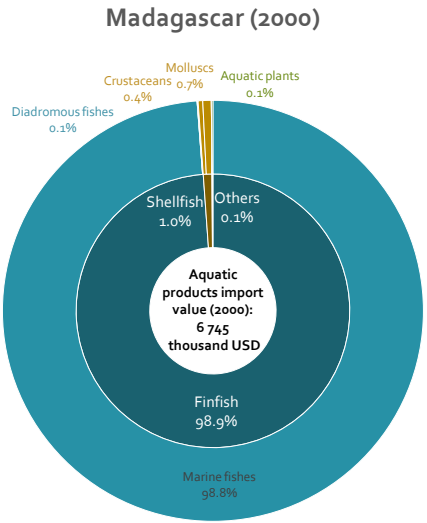
Country/area	Aquatic products import value (USD 1 000)		Annual growth (%)
	2000	2021	
World	**61 033 551**	**174 964 717**	**5.14**
Africa	958 036	5 389 509	8.57
Sub-Saharan Africa	743 753	3 976 382	8.31
Eastern Africa	89 186	753 441	10.70
Countries in Eastern Africa, ranked by import in 2021			
1. Mauritius	41 885	212 385	8.04
2. Zambia	1 700	132 251	23.04
3. Seychelles	11 517	128 433	12.17
4. Mozambique	9 403	101 931	12.02
5. Rwanda	113	49 596	33.61
6. Madagascar	***6 745***	***34 348***	***8.06***
7. Kenya	4 614	24 542	8.28
8. Zimbabwe	8 621	18 969	3.83
9. Somalia	100	11 117	25.15
10. Uganda	101	8 892	23.77
11. Djibouti	1 518	8 567	8.59
12. Malawi	585	5 992	11.72
13. United Republic of Tanzania	450	5 646	12.80
14. Comoros	335	3 931	12.44
15. Burundi	55	3 576	21.99
16. Ethiopia	249	1 950	10.30
17. South Sudan		1 085	n.a.
18. Eritrea	117	230	3.27

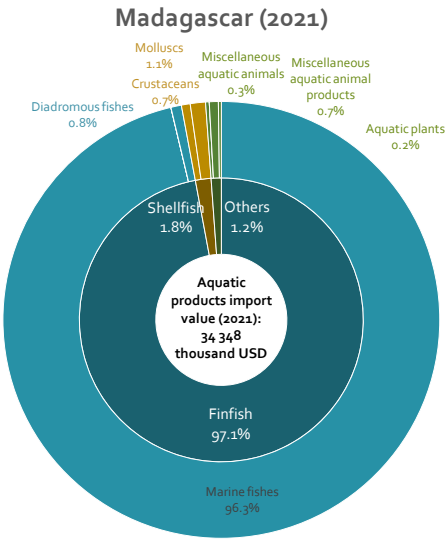


Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global Fisheries commodities production and trade 1976-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products.

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

Aquatic commodities import increased from USD 6.745 million in 2000 to USD 34.348 million in 2021, with a more diversified taxonomic composition.





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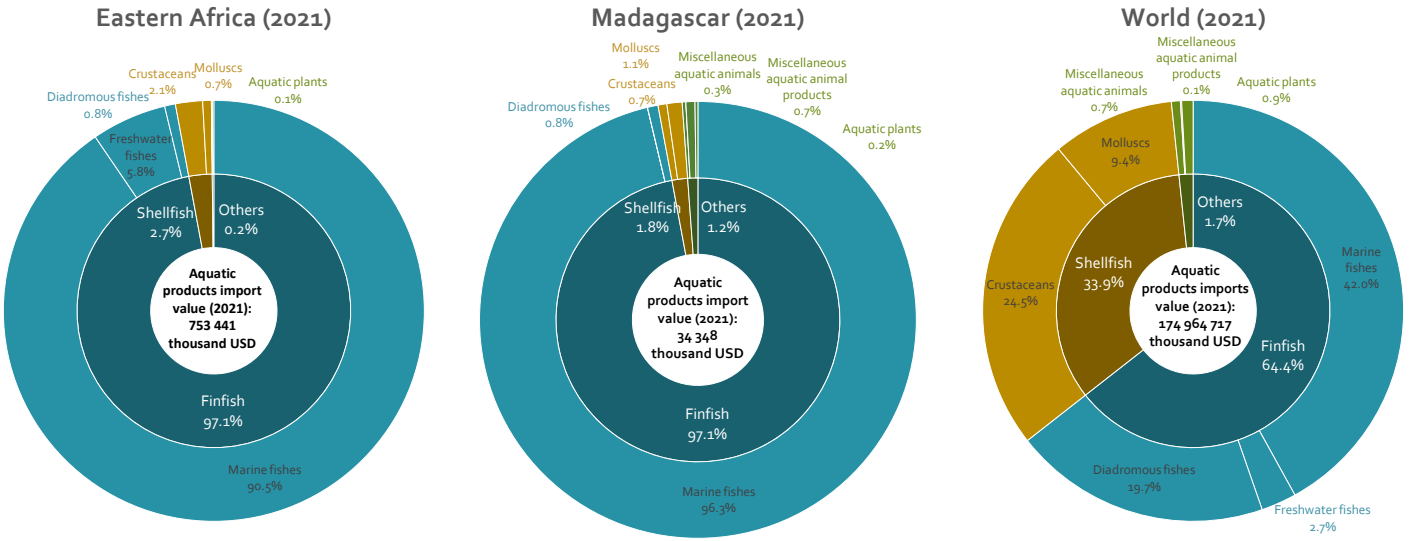
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. Species groups less than 0.1 percent of the total value not labelled in the charts.

Madagascar's import of aquatic products in 2021 comprised mostly marine fishes. The taxonomic composition was less diverse than regional and world patterns.



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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.

Madagascar's import of aquatic commodities in 2021 primarily spread among tunas/bonitos/billfishes and herrings/sardines/anchovies.

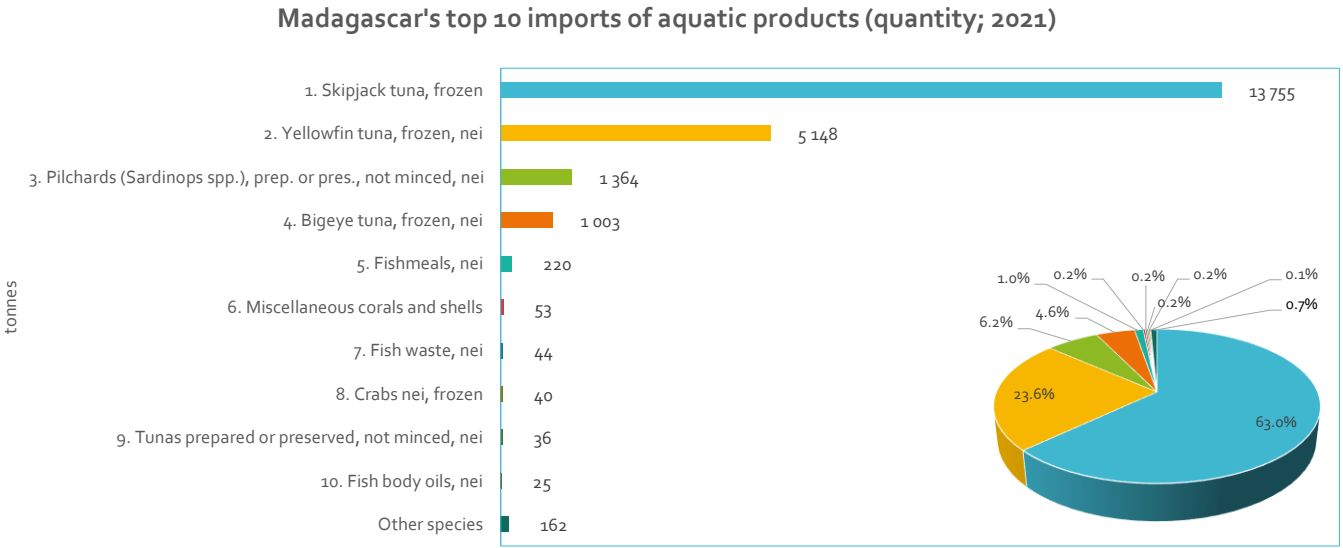
Madagascar's aquatic products import in 2021

Top 10 import species groups in terms of quantity				Top 10 import species groups in terms of value			
ISSCAAP groups in Madagascar's imports quantity	Product weight (tonnes)	Share of the country's total imports of all aquatic commodities (%)	Share of world imports of the same species group (%)	ISSCAAP groups in Madagascar's imports value	CIF value (USD 1000)	Share of the country's total imports of all aquatic commodities (%)	Share of world imports of the same species group (%)
1. Tunas, bonitos, billfishes	19 948	91.30	0.49	1. Tunas, bonitos, billfishes	28 638	83.38	0.18
2. Herrings, sardines, anchovies	1 387	6.35	0.05	2. Herrings, sardines, anchovies	3 751	10.92	0.08
3. Marine fishes not identified	303	1.39	0.00	3. Marine fishes not identified	625	1.82	0.00
4. Corals	53	0.24	0.05	4. Salmons, trouts, smelts	263	0.77	0.00
5. Crabs, sea-spiders	43	0.20	0.01	5. Corals	230	0.67	0.17
6. Salmons, trouts, smelts	24	0.11	0.00	6. Crabs, sea-spiders	202	0.59	0.00
7. Miscellaneous pelagic fishes	23	0.11	0.00	7. Clams, cockles, arkshells	152	0.44	0.02
8. Clams, cockles, arkshells	20	0.09	0.01	8. Miscellaneous marine molluscs	117	0.34	0.01
9. Sea-urchins and other echinoderms	13	0.06	0.03	9. Sea-urchins and other echinoderms	91	0.26	0.01
10. Miscellaneous marine molluscs	11	0.05	0.01	10. Mussels	87	0.25	0.01
Others	*25*	*0.11*	-	*Others*	*192*	*0.56*	-
Aquatic products	**21 850**	**100.00**	**0.05**	**Aquatic products**	**34 348**	**100.00**	**0.02**

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).

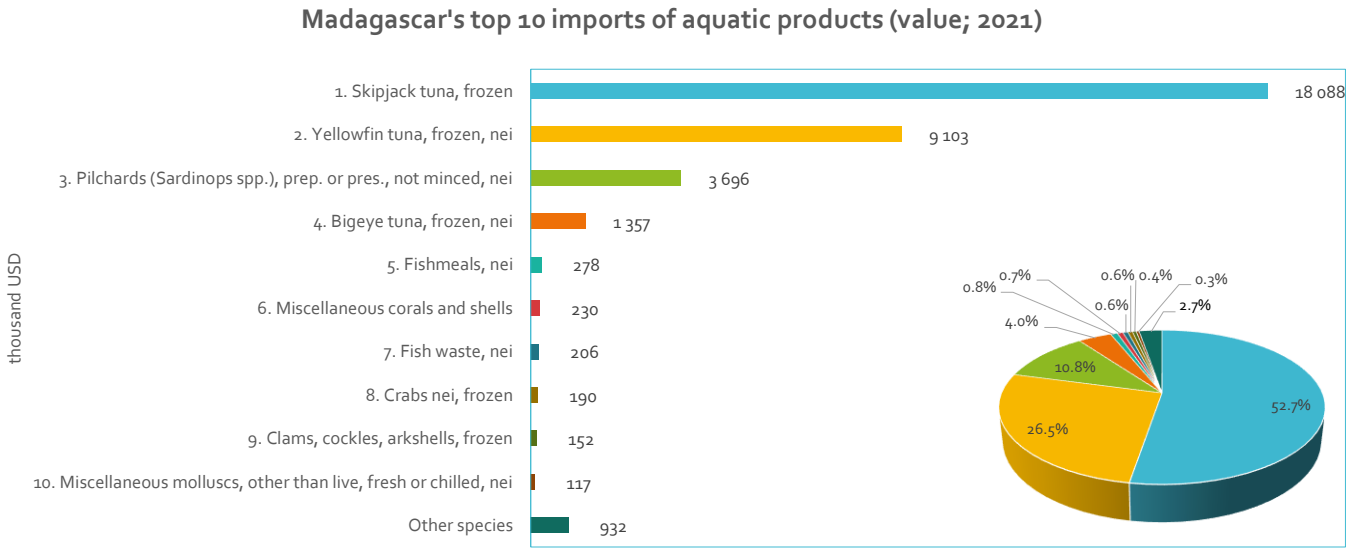
Notes: Includes all aquatic commodities recorded in the data source; see slide #4 for the scope of aquatic products. CIF = Cost, insurance and freight; ISSCAAP = International Standard Statistical Classification of Aquatic Animals and Plants.

Composition of Madagascar'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.

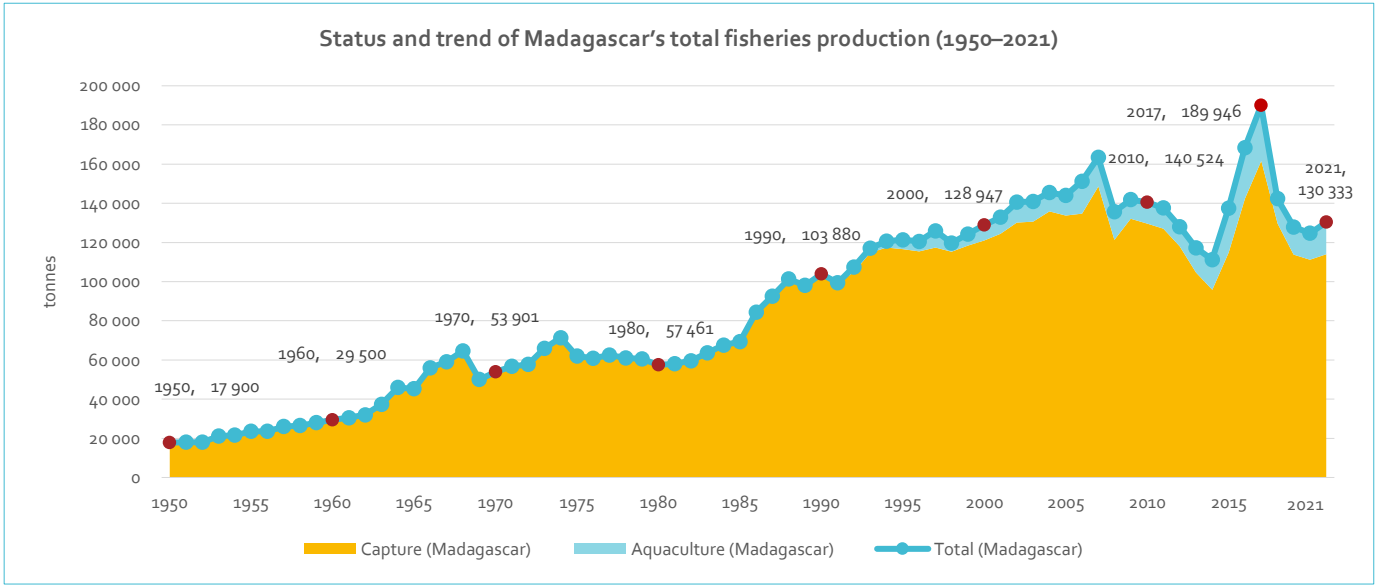
Composition of Madagascar's import of aquatic products (2021; in terms of value)



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

Madagascar (1950–2021): Total fisheries production increased from 17 900 tonnes in 1950 to 189 946 tonnes in 2017, then declined to 130 333 tonnes in 2021.The trends primarily reflected capture fisheries production, yet the contribution of aquaculture became more visible in the new millennium.



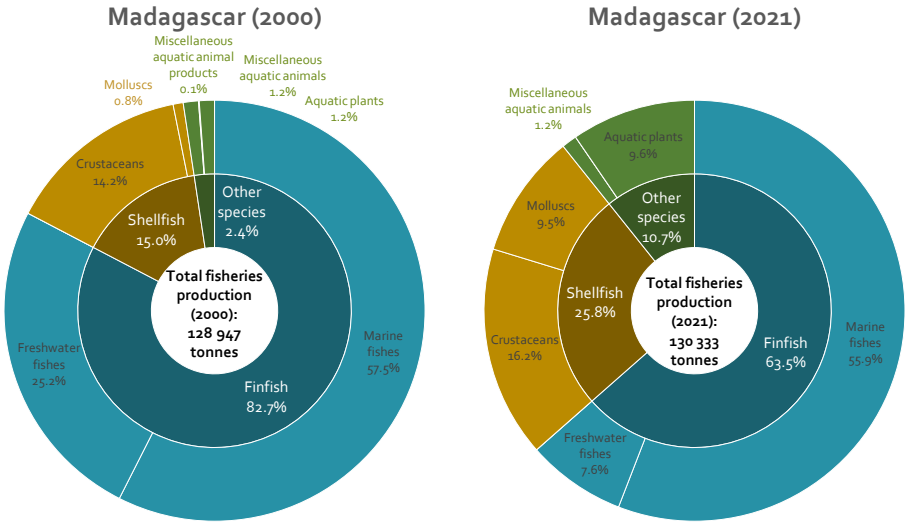
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global production by production source 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species.

Total fisheries production in Madagascar (2000 versus 2021):

Total fisheries production increased from 128 947 tonnes in 2000 to 130 333 tonnes in 2021.

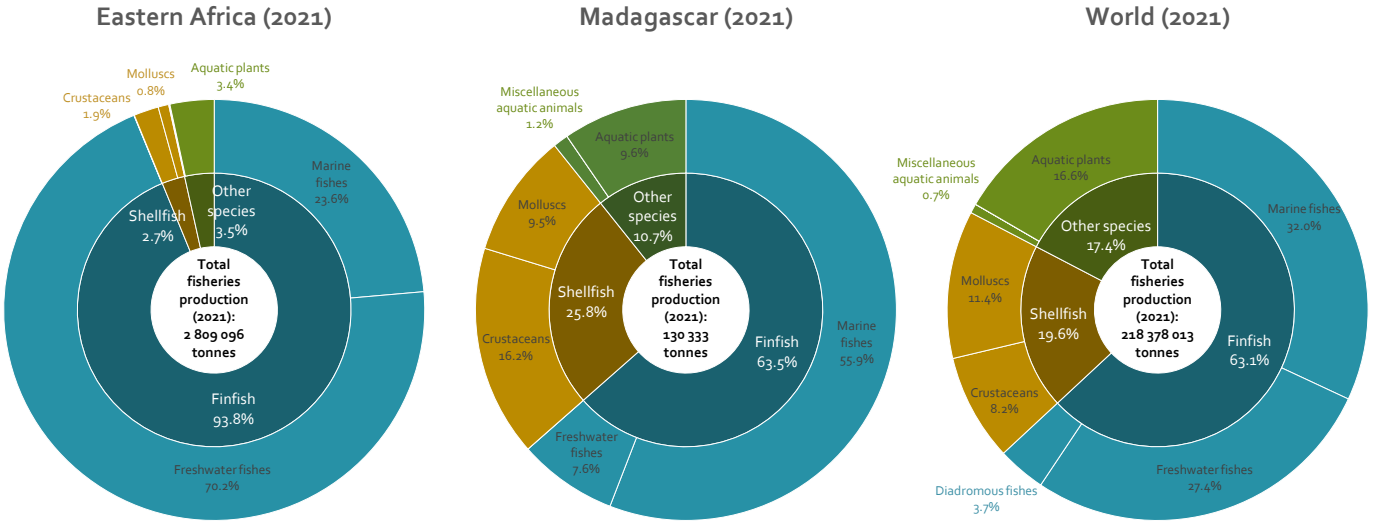
The share of finfish declined from 82.7 percent, primarily due to freshwater fishes.

The share of molluscs increased from 0.8 percent to 9.5 percent, while that of aquatic plants increased from 1.2 percent to 9.6 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.

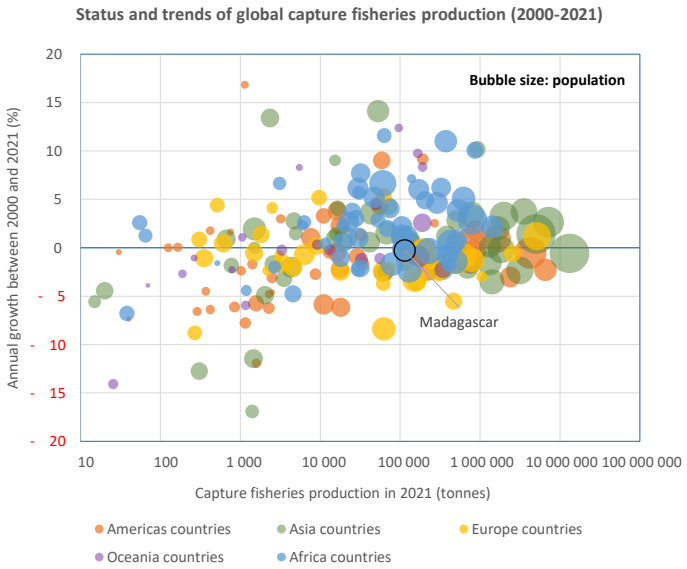
Nearly two thirds of total fisheries production in Madagascar (2021) came from finfish, primarily marine fishes (55.9 percent). Yet the shellfish share (25.8 percent) was greater than subregional and world averages. Aquatic plants accounted for 10.7 percent of the total production. The share was greater than the subregional average but lower than the world average.



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

Madagascar was the 7th largest capture fisheries country in Eastern Africa in 2021. Its capture fisheries production declined from 120 967 tonnes in 2000 to 113 937 tonnes in 2021, as opposed to increased sub-regional and regional production.



Status and trend of capture fisheries production, 2000 versus 2021

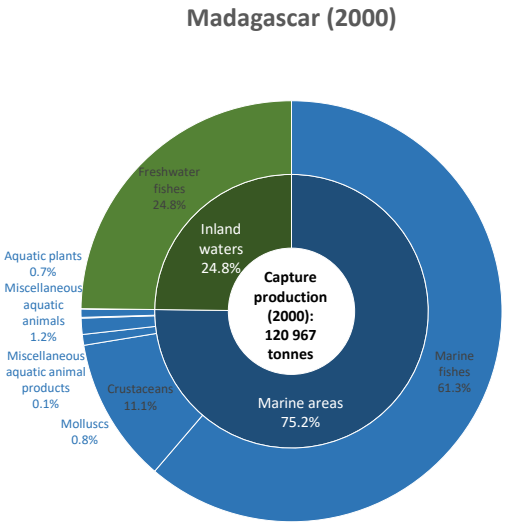
Country/area	Capture fisheries production (tonnes)		Annual growth (%)
	2000	2021	
World	**94 777 809**	**92 342 717**	**-0.12**
Africa	6 812 485	10 387 406	2.03
Sub-Saharan Africa	5 255 546	8 294 042	2.20
Eastern Africa	1 211 825	2 429 318	3.37
Countries in Eastern Africa, ranked by capture fisheries production in 2021			
1. Uganda	219 356	621 987	5.09
2. United Republic of Tanzania	345 186	514 575	1.92
3. Mozambique	41 530	373 563	11.03
4. Malawi	50 000	170 560	6.02
5. Seychelles	32 778	139 174	7.13
6. Kenya	215 799	130 903	-2.35
7. Madagascar	***120 967***	***113 937***	***-0.28***
8. Zambia	66 671	105 125	2.19
9. Ethiopia	15 681	60 650	6.65
10. South Sudan		32 500	n.a.
11. Rwanda	6 726	32 094	7.73
12. Mauritius	9 615	30 640	5.67
13. Somalia	24 150	30 000	1.04
14. Zimbabwe	13 114	22 734	2.65
15. Burundi	17 315	19 550	0.58
16. Comoros	12 003	19 356	2.30
17. Eritrea	12 712	4 574	-4.75
18. Djibouti	800	3 089	6.64
19. Réunion	4 102	2 693	-1.98
20. Mayotte	3 048	1 184	-4.40
21. French Southern Terr	272	430	2.20

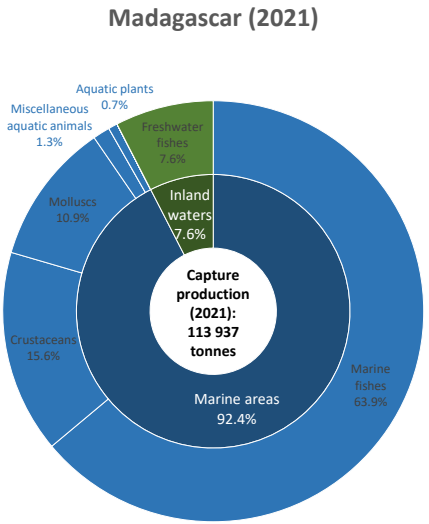
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: N.a. = not available. Country grouping based on UN-OHRLLS and UN M49 standard. Production covers all aquatic species measured in tonnage;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

Capture fisheries in Madagascar (2000 versus 2021):

Capture fisheries production declined from 120 967 tonnes to 113 937 tonnes, which was caused by a decrease in inland fisheries production, while the production in marine areas increased.

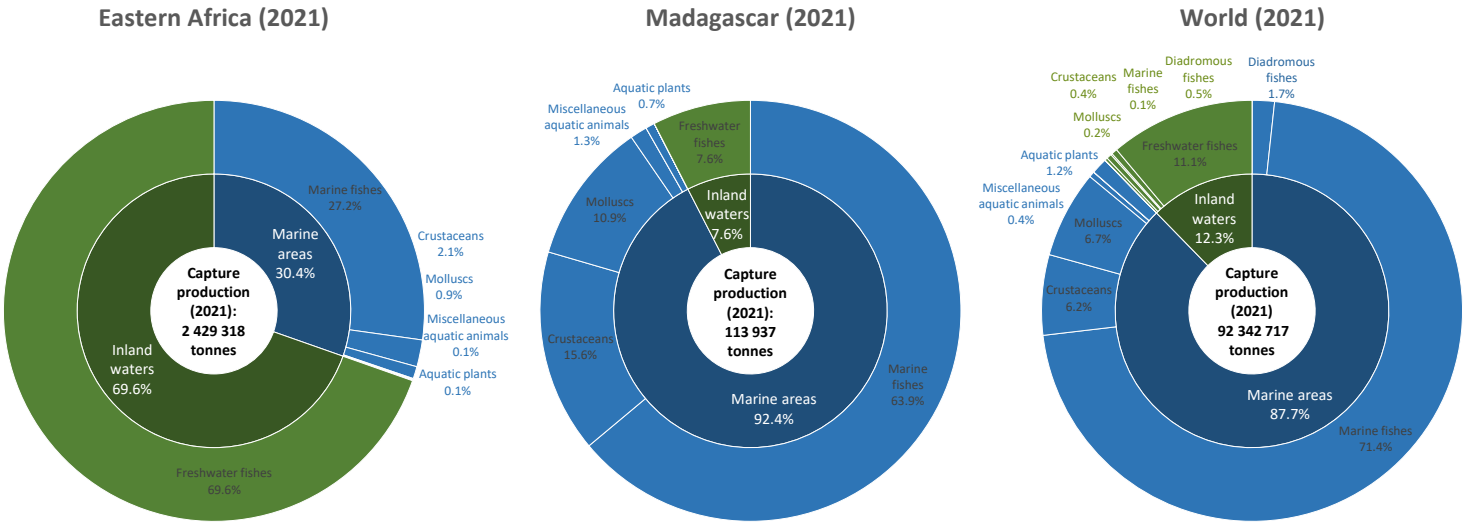
Accordingly, the share of inland fisheries declined from 24.8 percent to 7.6 percent.





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 7.6 percent of Madagascar's capture fisheries production in 2021, as opposed to 69.6 percent in Eastern Africa and 12.3 percent in the world.



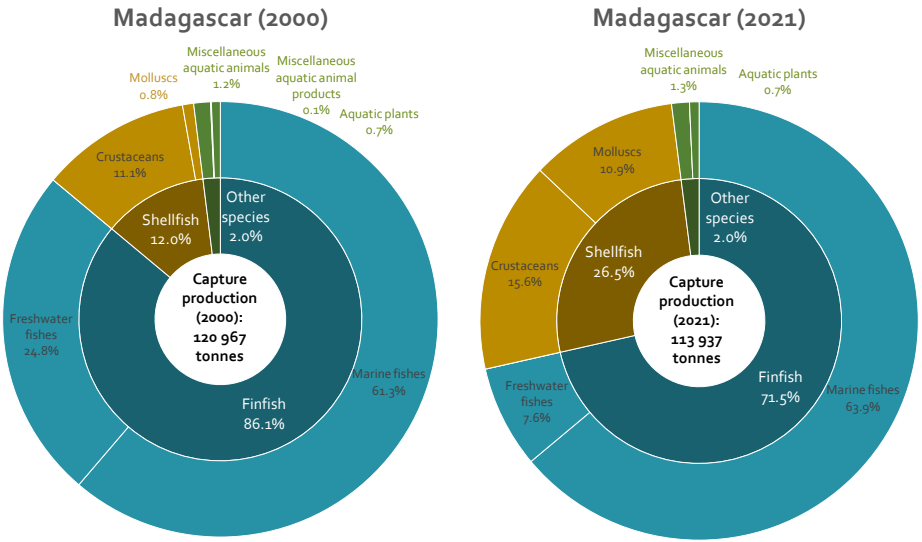
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Marine areas including coastal areas.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

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

Capture fisheries production declined from 120 967 tonnes to 113 937 tonnes.

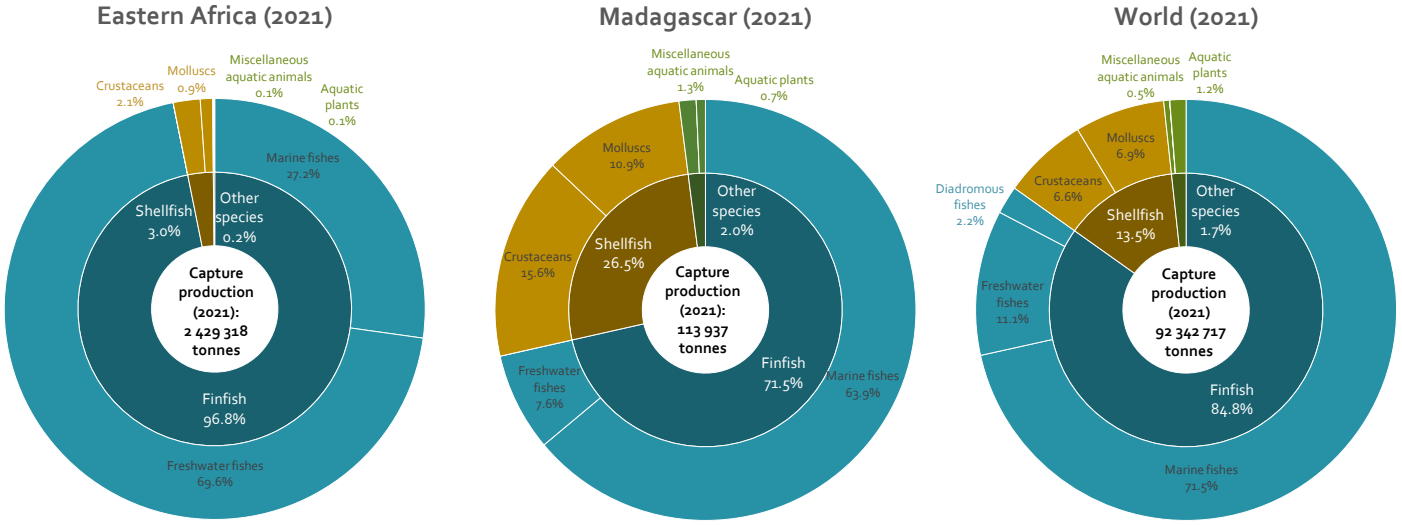
The share of finfish declined from 86.1 percent to 71.5 percent because of the decline of freshwater fishes from 24.8 percent to 7.6 percent.

The share of shellfish increased from 12 percent to 26.5 percent, with increases in the shares of both crustaceans and molluscs.



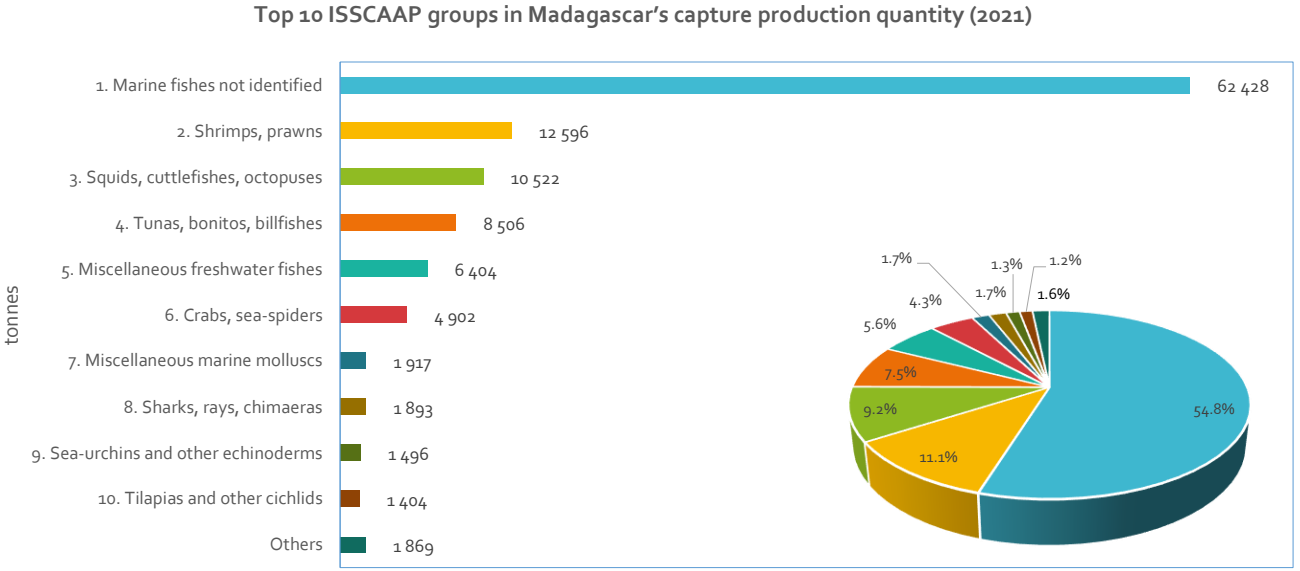
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Species accounting for less than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

Marine fishes accounted for nearly two thirds of Madagascar's capture fisheries production in 2021; the share was higher than the regional average yet lower than the world average. The taxonomic composition appeared more diverse than regional and world patterns.



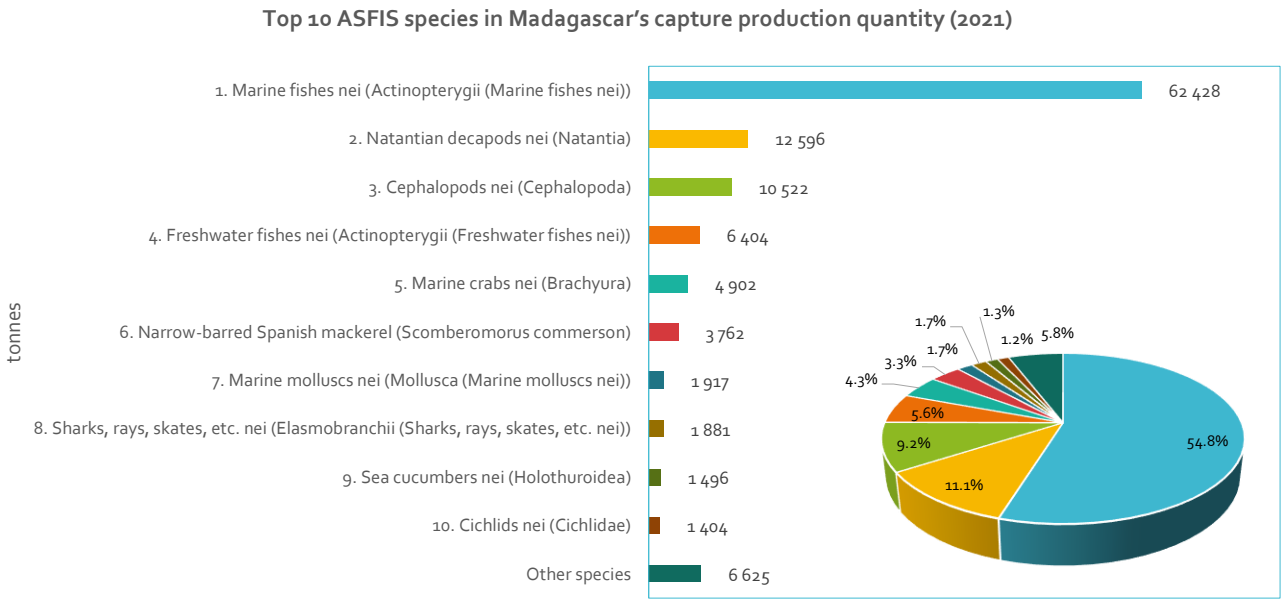
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global production by production source 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Species accounting for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

Taxonomic composition of Madagascar's capture fisheries production (2021): Marine fishes not identified accounted for more than half of the production, followed by shrimps/prawns (11.1 percent) and squids/cuttlefishes/octopuses (9.2 percent).



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 Madagascar's capture fisheries production in 2021



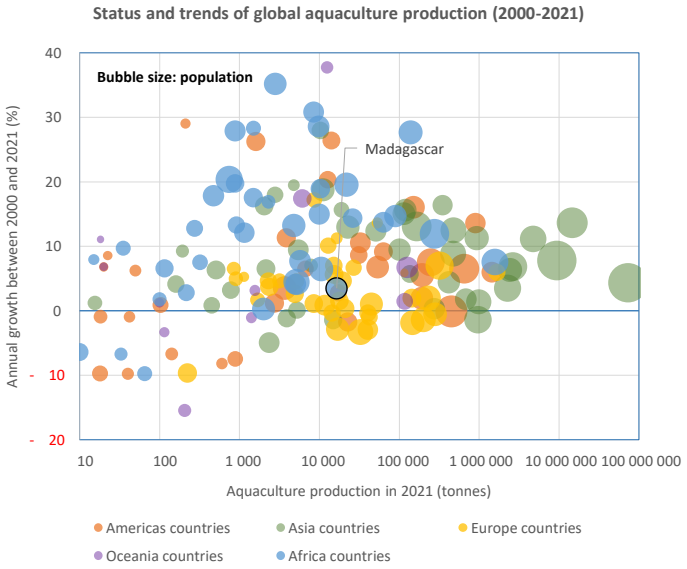
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ). www.fao.org/fishery/en/statistics/software/fishstatj
Notes: The common and scientific names of a species follow the names adopted in the database. Nei = not elsewhere included. ASFIS = Aquatic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

Aquaculture production

Aquaculture production in Madagascar increased from 7 980 tonnes in 2000 to 16 396 tonnes in 2021. The 3.49 percent annual growth was lower than sub-regional, regional, and world averages.

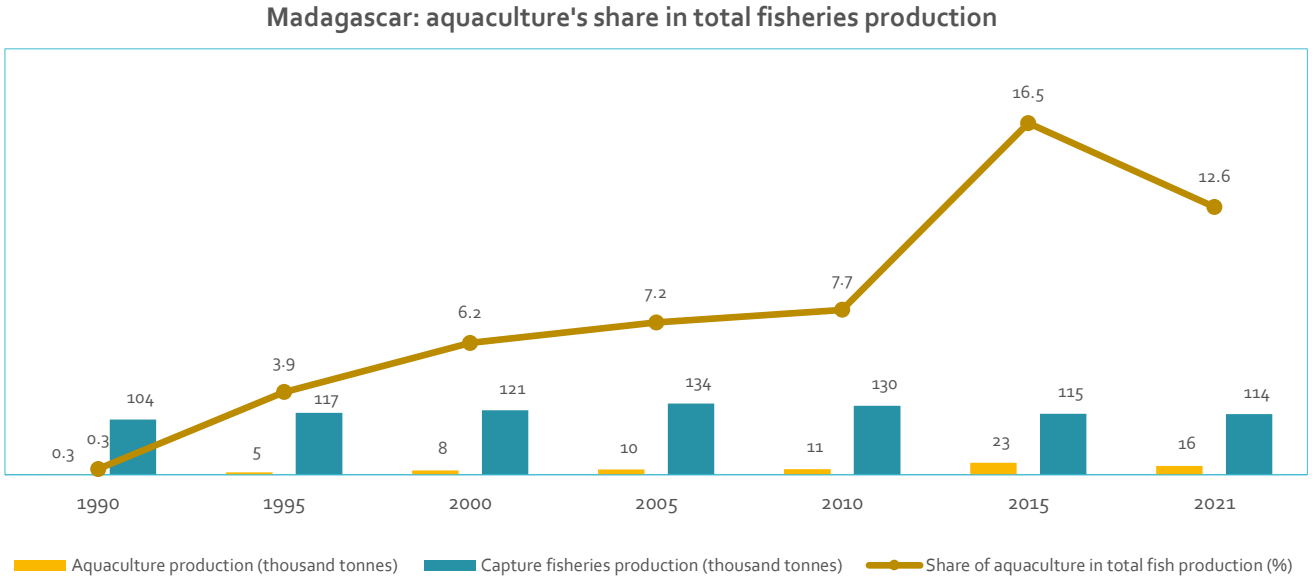
Status and trends of aquaculture production, 2000 versus 2021

Country/area	Aquaculture production of all species (tonnes)		Annual growth (%)
	2000	2021	
World	**43 016 624**	**126 035 297**	**5.25**
Africa	451 264	2 418 844	8.32
Sub-Saharan Africa	107 338	809 782	10.10
Eastern Africa	68 351	379 778	8.51
Countries in Eastern Africa, ranked by aquaculture production in 2021			
1. Uganda	820	138 558	27.67
2. United Republic of Tanzania	51 120	106 482	3.56
3. Zambia	4 240	63 355	13.74
4. Kenya	512	21 825	19.56
5. Madagascar	***7 980***	***16 396***	***3.49***
6. Rwanda	270	10 313	18.94
7. Malawi	530	9 948	14.98
8. Zimbabwe	2 151	5 058	4.16
9. Mozambique		3 200	n.a.
10. Mauritius	87	2 316	16.91
11. Burundi	50	1 490	17.54
12. Ethiopia	15	740	20.40
13. South Sudan		45	n.a.
14. Réunion	142	33	-6.71
15. Mayotte	3	15	7.97
16. Eritrea	6	4	-1.91



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 Madagascar increased from less than half a thousand tonnes in 1990 to 23 thousand tonnes in 2015 yet declined to 16 thousand tonnes in 2021. The share of aquaculture in total fisheries production increased from less than half a percent to 16.5 percent then declined to 12.6 percent.

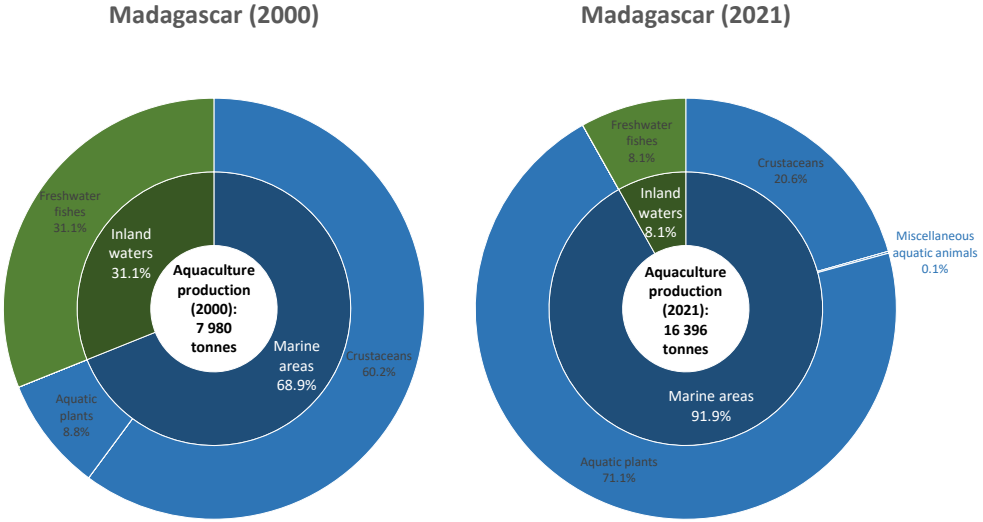


Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species.

Aquaculture in Madagascar (2000 versus 2021):

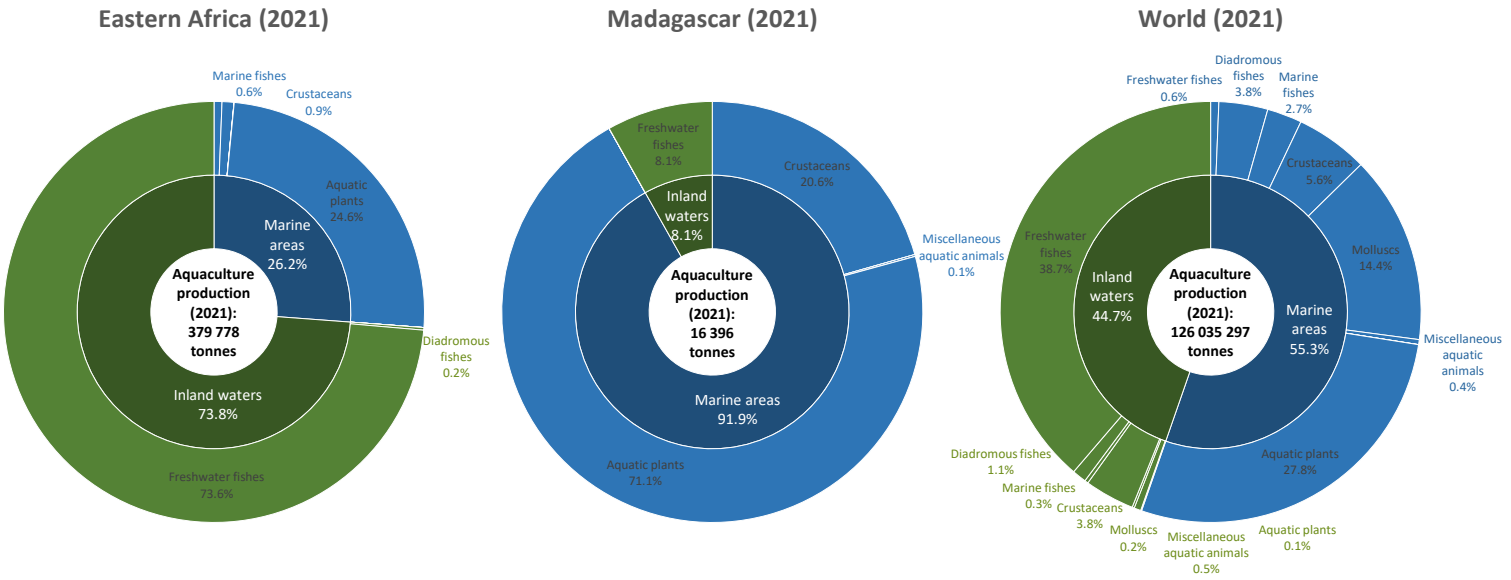
Aquaculture production increased from 7 980 tonnes to 16 396 tonnes, primarily driven by seaweed farming in marine areas.

The share of inland aquaculture declined from 31.1 percent to 8.1 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 aquaculture accounted for 8.1 percent of Madagascar's aquaculture production in 2021, as compared to 73.8 percent in Eastern Africa and 44.7 percent in the world.



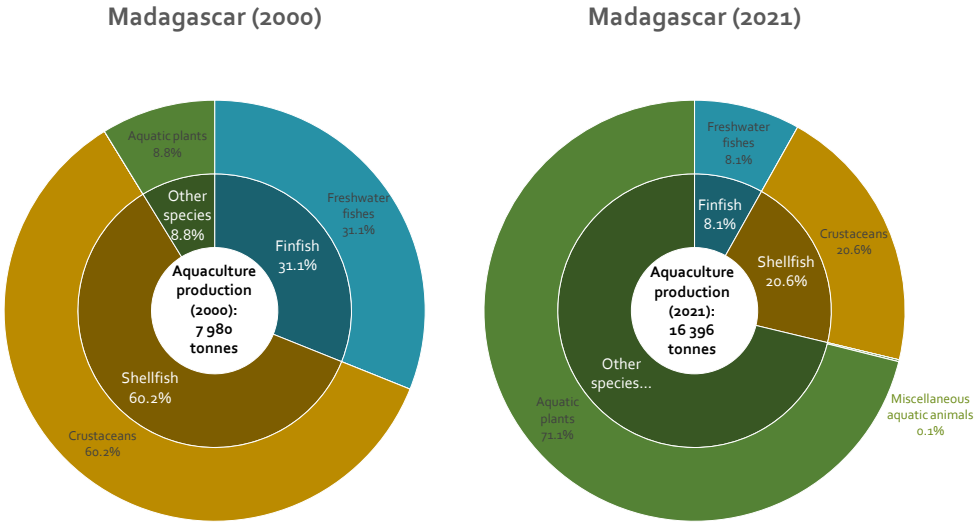
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Constructed by the FAO WAPI Aquaculture Production Module (WAPI-AQPRN); see Figure 1.5 in WAPI-AQPRN v.2018.1 for a similar example (www.fao.org/fishery/statistics/software/wapi/en). 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 of aquaculture production in Madagascar (2000 versus 2021):

Aquaculture production increased from 7 980 tonnes to 16 396 tonnes.

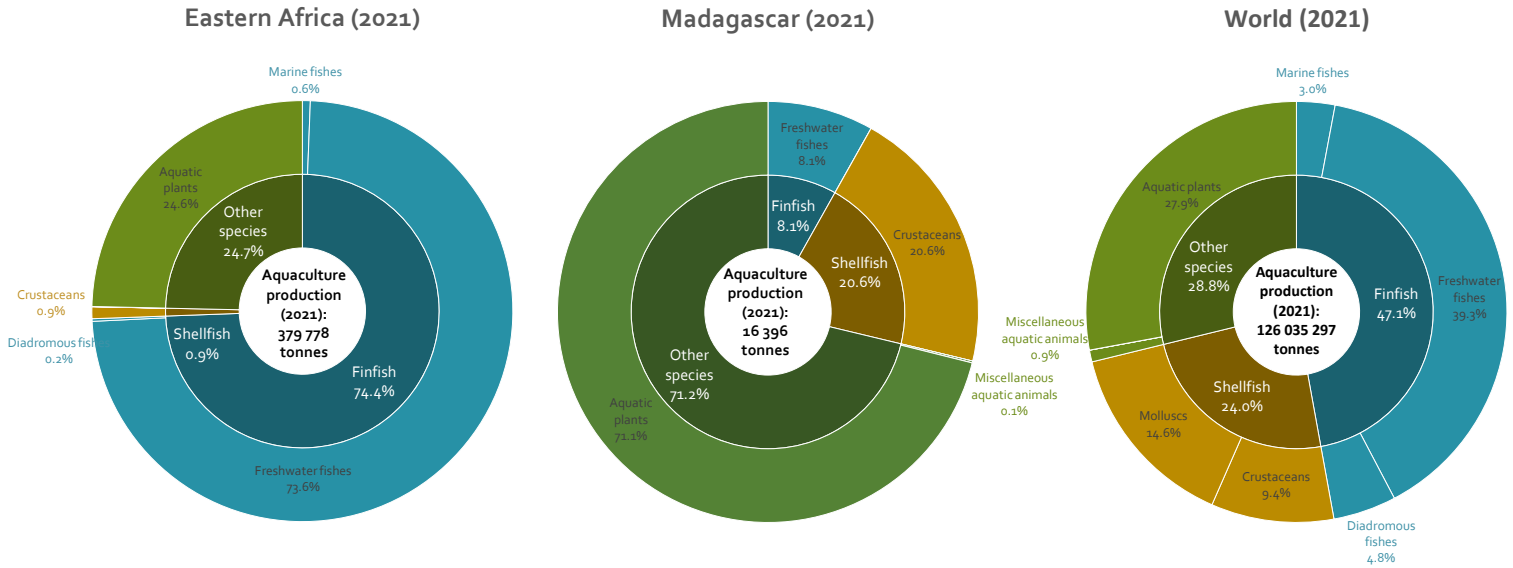
The share of shellfish declined from 60.2 percent to 20.6 percent, and that of finfish declined from 31.1 percent to 8.1 percent.

The share of aquatic plants (seaweed) increased from 8.8 percent to 71.1 percent.



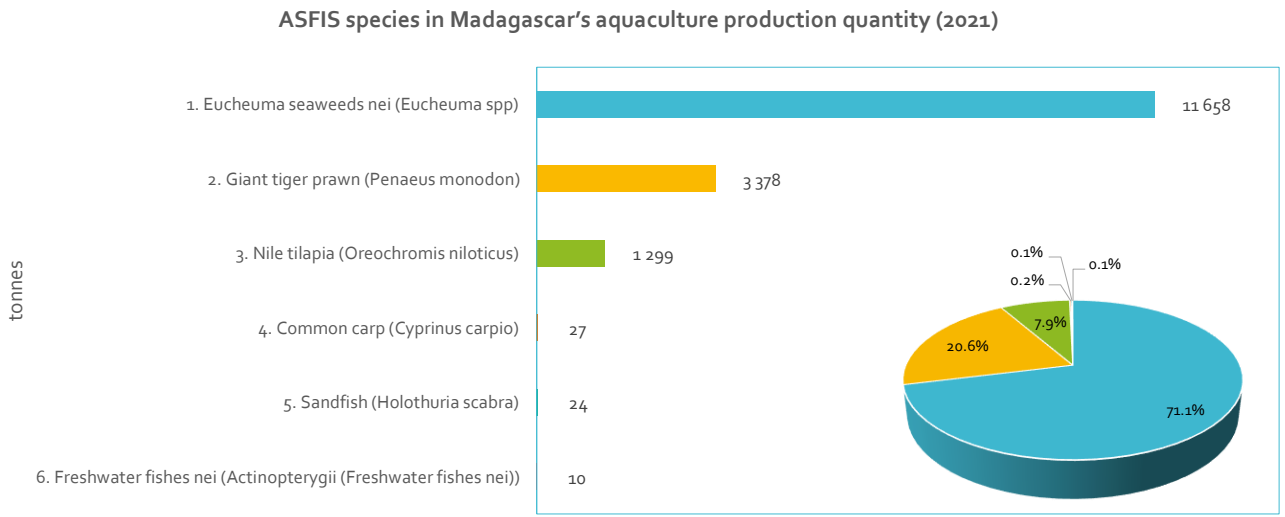
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global capture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all species measured in tonnage; see slide #4 for the scope of aquatic species. Species accounting for less than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

Aquatic plants (seaweed) accounted for 71.2 percent of Madagascar's aquaculture production in 2021, as compared to 24.7 percent in Eastern Africa and 28.8 percent in the world. The crustacean share (20.6 percent) was also higher than Eastern Africa and world averages.



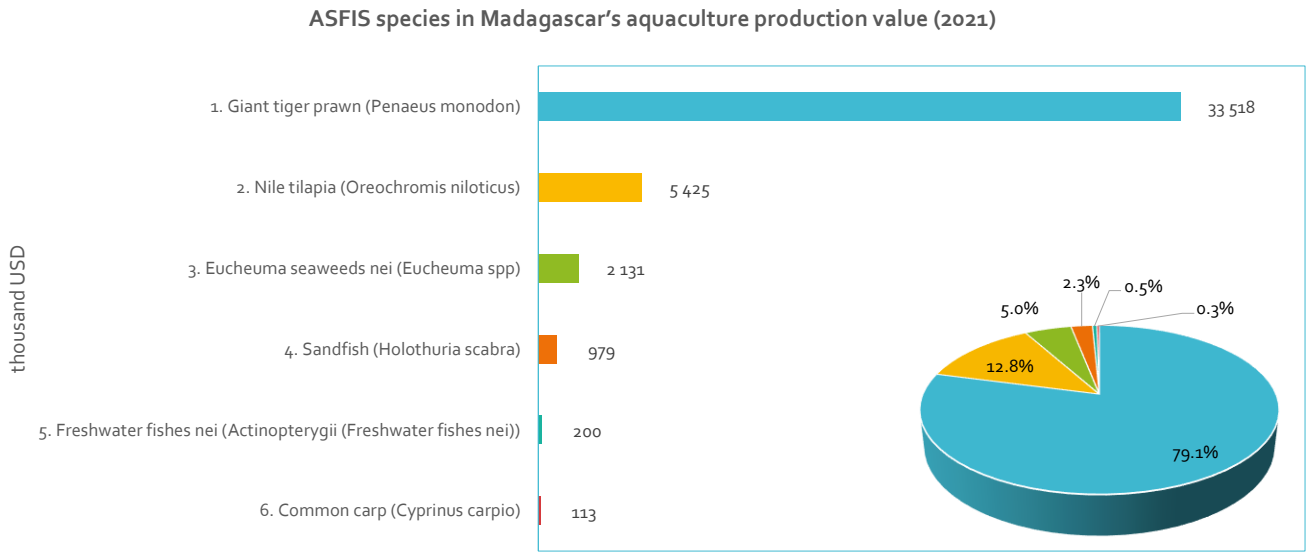
Data source: FAO. 2023. Fishery and Aquaculture Statistics. Global aquaculture production 1950-2021 (FishStatJ; www.fao.org/fishery/en/statistics/software/fishstatj).
Notes: Production covers all aquatic species measured in tonnage; see slide #4 for the scope of aquatic species. Species group less than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

Eucheuma seaweed nei accounted for 71.1 percent of Madagascar's aquaculture production in 2021, followed by giant tiger prawn (20.6 percent) and Nile tilapia (7.9 percent)



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

Giant tiger prawn accounted for 79.1 percent of Madagascar's aquaculture production value in 2021, followed by Nile tilapia (12.8 percent) and Eucheuma seaweeds nei (5 percent).



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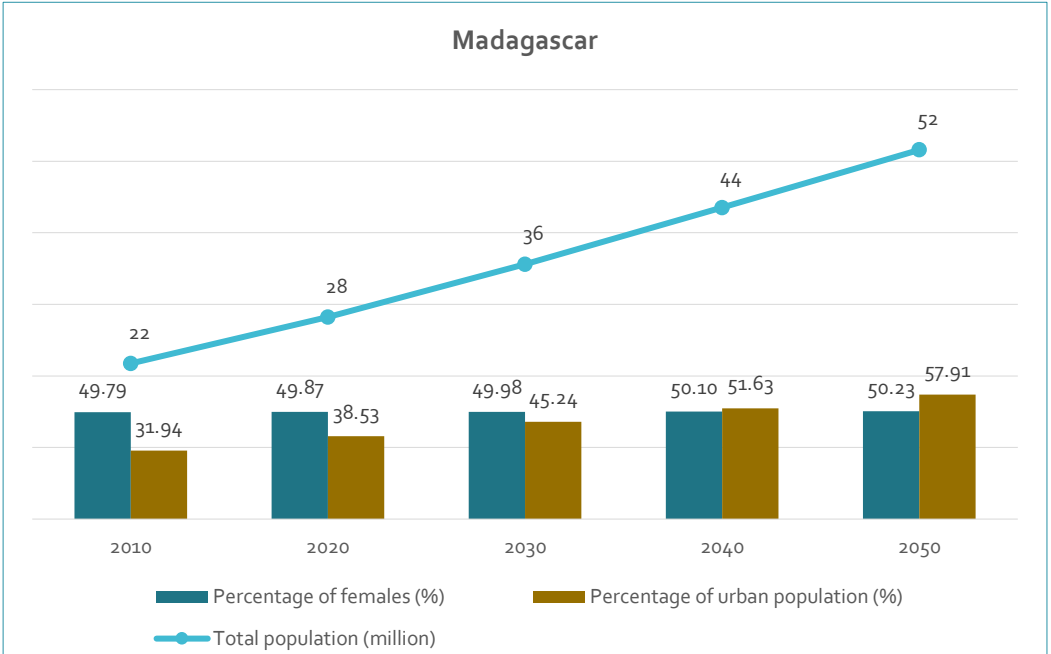
Outlook

Population prospects in Madagascar (2010–2050):

Total population is expected to nearly double from 28 million in 2020 to 52 million in 2050.

The ratio of urban population is expected to reach 57.91 percent in 2050.

The female ratio is expected to rise above 50 percent.

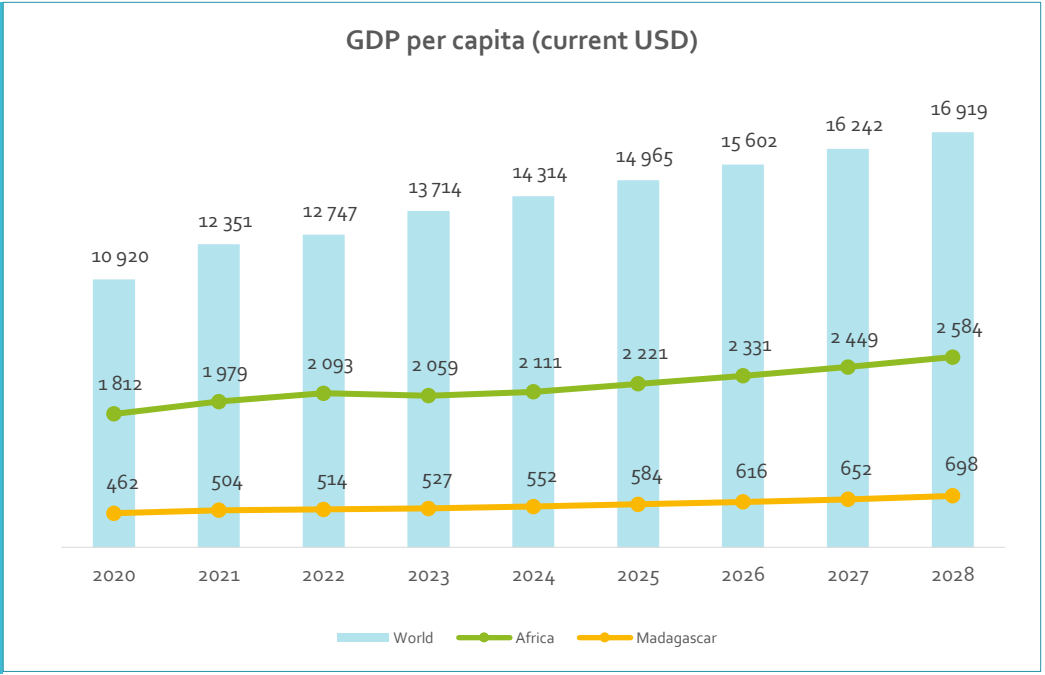


Data sources: United Nations World Population Prospects (2022 revision; https://esa.un.org/unpd/wpp/Download/Standard/Population). United Nations World Urbanization Prospects (2018 revision; https://population.un.org/wup).

Madagascar's GDP prospects (2020-2028):

According to IMF's projection, Madagascar's GDP per capita is expected to increase from USD 462 to USD 698 between 2020 and 2028.

The 51 percent growth is higher than per capita GDP growth in Africa (43 percent growth from USD 1 812 to USD 2 584) yet lower 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).

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

Madagascar	Baseline (2020)	Projection to 2030			
		Population growth only		Population growth + higher per capita consumption	
		Year 2030	2030 compared to baseline	Year 2030	2030 compared to baseline
1. Per capita fish and seafood demand (kg/capita/year)	3.98	3.98	-	7.26	3.28
2. Population (thousand)	28 225	35 604	7 379	35 604	7 379
3. Total fish and seafood demand (tonnes)	112 406	141 794	29 388	258 488	146 082
4. Fish and seafood supply from aquaculture (tonnes)	5 466	11 293	5 827	11 293	5 827
5. Supply-demand gap (tonnes)			**-23 561**		**-140 255**

Notes: Fish and seafood includes finfish, crustaceans, molluscs and miscellaneous aquatic animals. 1. Madagascar's per capita fish and seafood consumption in 2020 baseline is assumed to be the same as the level in 2019 (3.98 kg); its consumption in 2007 (7.26 kg) is treated as the higher benchmark. 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), Madagascar's farmed fish and seafood production declined from 11 293 tonnes in 2007 to 10 933 tonnes in 2017 then further down to 5 466 tonnes in 2020. Assume that the production in 2030 could recover back to the level in 2007. 5. Equal to (4) - (3).

- Given the 3.98 kg baseline per capita fish and seafood consumption, 141 794 tonnes of fish and seafood will be needed to satisfy the demand of Madagascar's 35 604 thousand total population in 2030, which is 29 388 tonnes higher than its 112 406 tonnes of baseline fish and seafood demand in 2020 when the population was 28 225 thousand.
- If Madagascar could increase its per capita fish and seafood consumption back to year 2007 level (7.26 kg), 146 082 tonnes of additional fish and seafood supply would be needed to satisfy the extra demand generated by the population growth and higher per capita consumption.
- Madagascar's farmed fish and seafood production declined from 11 293 tonnes in 2007 to 10 933 tonnes in 2017 then further down to 5 466 tonnes in 2020. Assume that the production in 2030 could recover back to the level in 2007; the 5 827 tonnes of extra supply compared to the baseline would nevertheless be insufficient to cover the 29 388 tonnes of extra fish and seafood demand driven by population growth only (with a deficit of 23 561 tonnes), let alone the 146 082 tonnes of extra fish and seafood demand driven by the population growth and higher per capita consumption (with a shortage of 140 255 tonnes).
- Madagascar's farmed fish and seafood production (excluding seaweed) would need to reach 34 854 tonnes in 2030 (6.4 time growth; 20.35 percent annually between 2020 and 2030) in order to generate enough extra supply to cover the 29 388 tonnes extra demand driven by population growth only. The production would need to reach 151 548 tonnes (27.7 times; 39.41 percent annually) in order to cover the 146 082 tonnes of extra demand driven by both the population growth and higher per capita consumption.

Madagascar: Aquaculture growth potential from a supply-side perspective

- Madagascar's share in world aquaculture production tonnage (0.013 percent):
  - **lower than** its share in world land area (0.44 percent).
  - **lower than** its share in world population (0.37 percent).
- Madagascar's share in world inland aquaculture production (0.0024 percent):
  - **Smaller than** its share in world surface area of inland waterbodies (0.13 percent).
  - **Smaller than** its share in world renewable water resources (0.62 percent).
- Madagascar's share in world marine aquaculture production (0.0216 percent):
  - **lower than** its share in world coastline length (0.6 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.

Madagascar	Share of world total (%)
Total country area (excluding coastal waters, 2020)[1]	0.44
Surface area of inland waterbodies (2020)[2]	0.13
Coastline length (2019)[3]	0.60
Total renewable water resources (2020)[1]	0.62
Population (2021)[4]	0.37
Aquaculture production (all areas, 2021)[5]	**0.0130**
Aquaculture production (inland waters, 2021)[5]	**0.0024**
Aquaculture production (marine areas, 2021)[5]	**0.0216**

Data sources: 1. FAO AQUASTAT main country database (November 2020; downloaded on 29 April, 2023). 2FAOSTAT 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. 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: http://www.fao.org/fishery/naso/search/en
- 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: http://www.fao.org/fishery/nalo/search/en

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: http://www.fao.org/fishery/statistics/software/wapi/en
- World Aquaculture Performance Indicators (WAPI) banner: http://www.fao.org/3/CA0198EN/ca0198en.pdf
- *World Aquaculture Performance Indicators (WAPI) – Information, Knowledge and Capacity for Blue Growth* (brochure): http://www.fao.org/3/I9622EN/i9622en.pdf
- *The Potential of World Aquaculture Performance Indicators as a Research and Educational Tool* (FAN article, April 2017): http://www.fao.org/3/a-i7171e.pdf
- *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): http://www.fao.org/3/a-i3539e.pdf