Sustainable Aquaculture Development: policy and future

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Contents

- World aquaculture status quo
- Blue transformation roadmap
- Guideline for sustainable aquaculture
- Way forward

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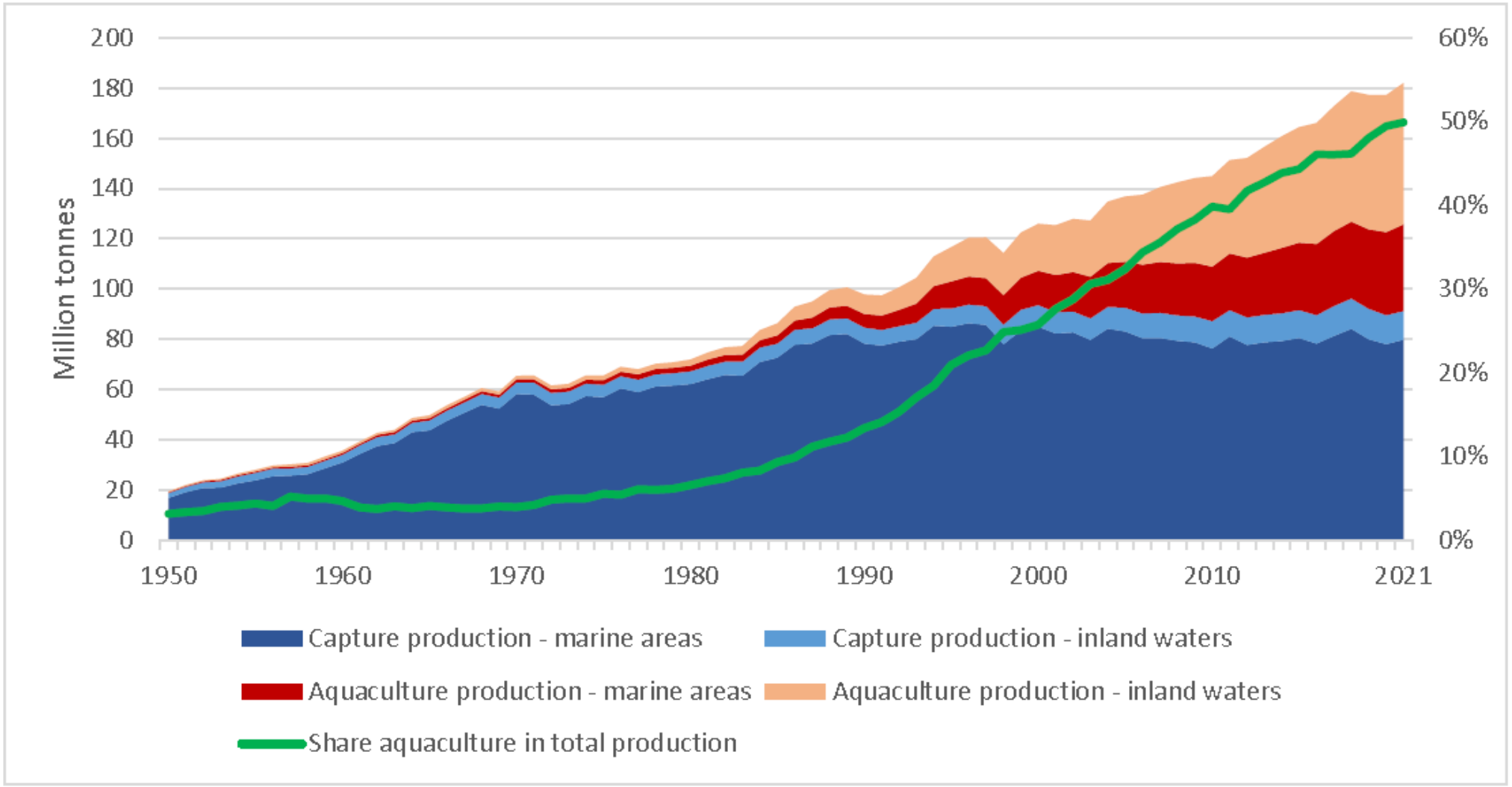
TOTAL FISHERIES AND AQUACULTURE PRODUCTION OF AQUATIC ANIMALS



Source: FAO 2023.

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World Aquaculture Production Quantity and Value

thousand tonnes

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Quantity (thousand tonnes)												
Finfish, crustaceans and molluscs, etc.	57 759.1	59 809.1	63 502.1	66 935.8	70 519.3	72 893.5	76 521.6	79 566.5	82 463.9	85 219.2	87 630.5	90 861.8
Seaweeds and microalgae	20 174.3	21 768.4	24 667.7	27 993.6	29 067.5	31 073.5	31 645.6	32 608.4	33 433.3	34 587.3	35 079.6	35 171.6
Ornamental shells and pearls	63.3	53.5	22.2	33.5	48.2	41.0	54.2	65.7	27.3	2.4	1.8	1.9
Total aquaculture	**77 997**	**81 631**	**88 192**	**94 963**	**99 635**	**104 008**	**108 221**	**112 241**	**115 925**	**119 809**	**122 712**	**126 035**
Value (USD billion)												
Finfish, crustaceans and molluscs, etc.	1 311.9	1 548.5	1 699.1	1 920.6	2 109.2	2 069.1	2 239.0	2 389.3	2 492.9	2 591.7	2 632.7	2 808.9
Seaweeds and microalgae	88.6	90.6	107.8	114.4	112.7	104.7	114.4	123.0	134.5	147.3	151.6	154.5
Ornamental shells and pearls	2.4	2.5	2.3	2.4	2.7	2.4	2.6	2.9	2.6	1.9	1.4	1.4
Total aquaculture	**140**	**164**	**181**	**204**	**222**	**218**	**236**	**252**	**263**	**274**	**279**	**296**

Note: Quantities are in live weight, except ornamental shells and pearls that are in product weight.

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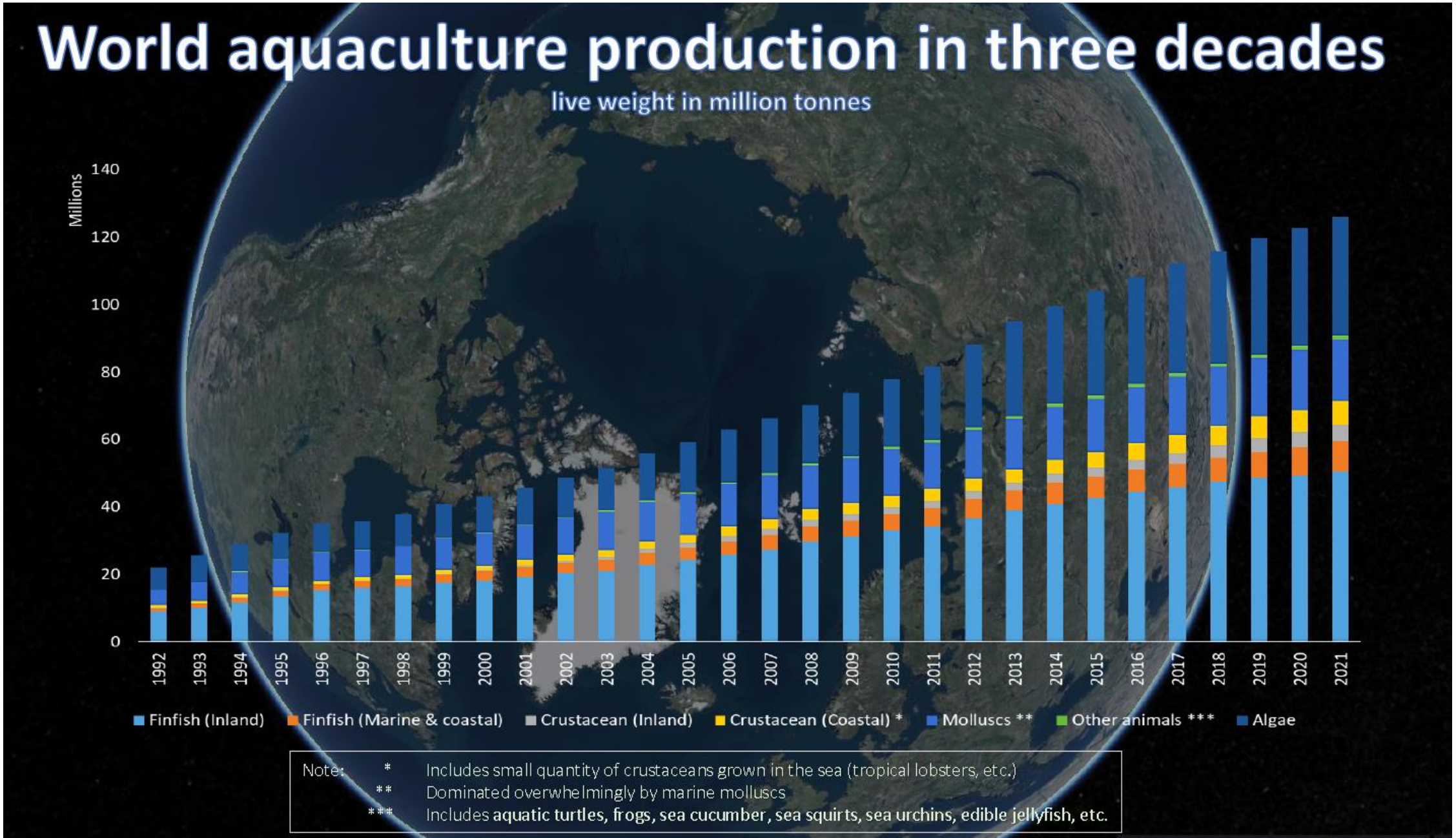

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Share of aquaculture in total fishery production

	Total production of aquatic animals		Total production of aquatic animals and algae	
2021	49.9		57.7	
2010	39.8		46.9	
2000	25.7		31.2	
1980	6.5		10.3	
1950	3.1		3.2	

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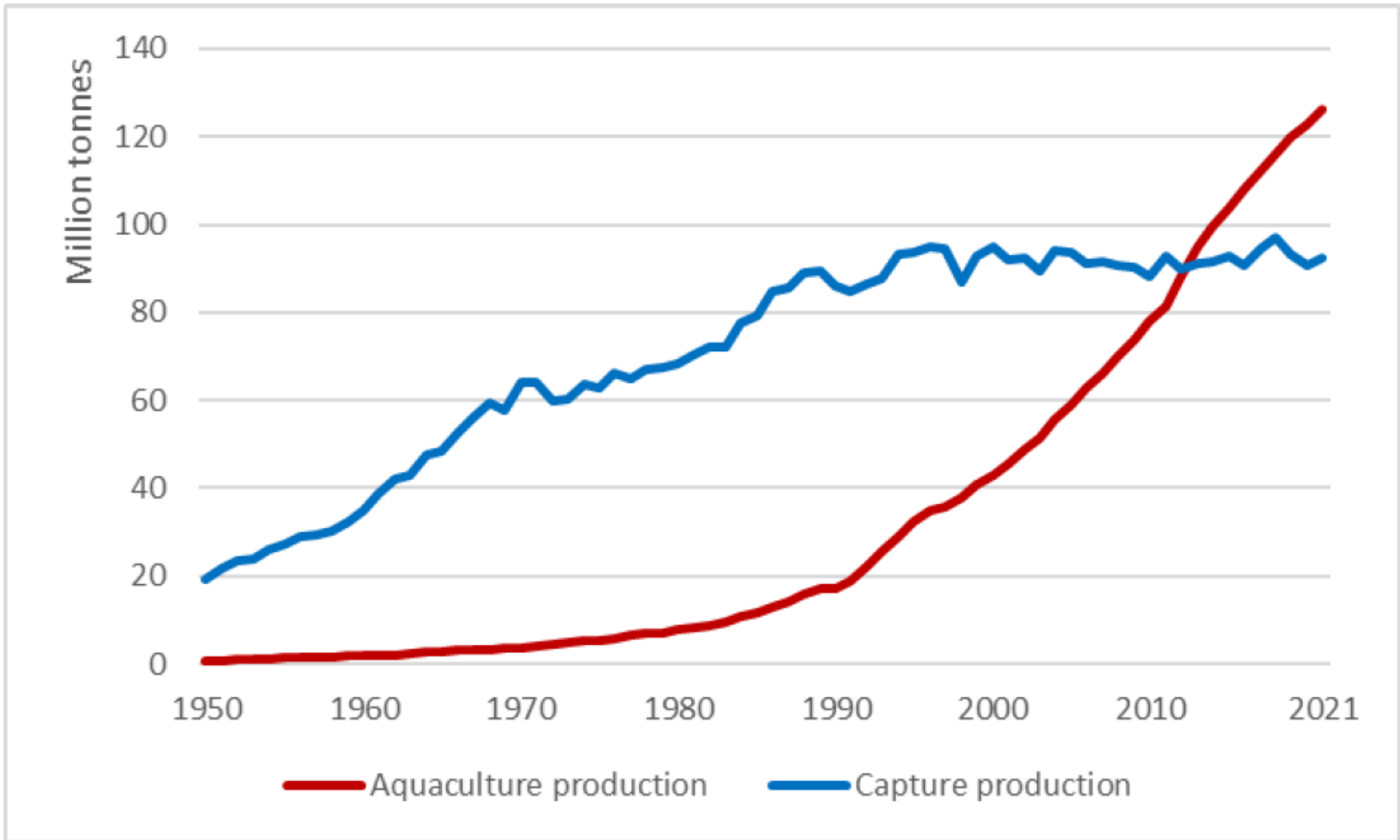
TOTAL FISHERIES AND AQUACULTURE PRODUCTION OF AQUATIC ANIMALS AND ALGAE



Source: FAO 2023.

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WORLD CAPTURE FISHERIES AND AQUACULTURE PRODUCTION OF AQUATIC ANIMALS IN MILLION TONNES AND PERCENTAGE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capture fisheries											
Inland	10.5	10.9	10.9	11.0	11.1	11.3	11.9	12.1	12.2	11.5	11.4
Marine	81.0	77.7	78.8	79.3	80.4	78.2	81.3	84.1	79.9	78.0	79.8
Total capture fisheries	***91.6***	***88.7***	***89.7***	***90.3***	***91.6***	***89.5***	***93.2***	***96.2***	***92.1***	***89.6***	***91.2***
Aquaculture:											
Inland	37.2	39.7	42.2	44.4	46.0	48.1	49.7	51.8	53.5	54.5	56.2
Marine	22.6	23.8	24.8	26.1	26.9	28.5	29.9	30.7	31.7	33.2	34.6
Total aquaculture	***59.8***	***63.5***	***66.9***	***70.5***	***72.9***	***76.5***	***79.6***	***82.5***	***85.2***	***87.6***	***90.9***
Total inland	***47.7***	***50.6***	***53.1***	***55.4***	***57.1***	***59.4***	***61.6***	***63.9***	***65.7***	***66.0***	***67.6***
Total marine	***103.7***	***101.6***	***103.6***	***105.4***	***107.4***	***106.7***	***111.2***	***114.8***	***111.6***	***111.2***	***114.5***
Total world capture fisheries and aquaculture	151.4	152.2	156.6	160.8	164.5	166.1	172.8	178.7	177.3	177.2	182.1

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World aquaculture production of aquatic animals by region

live weight in thousand tonnes

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Africa	Inland aquaculture	1437.7	1567.0	1656.1	1719.5	1885.4	1895.3	2118.5	2144.8	2085.2	2142.8
	Marine or coastal aquaculture	61.4	63.7	73.1	69.5	104.8	142.5	130.7	146.4	177.9	179.2
Americas	Inland aquaculture	960.0	987.3	1144.2	1082.2	1111.6	1160.2	1205.2	1224.4	1252.3	1231.7
	Marine or coastal aquaculture	2030.6	1999.1	2204.6	2197.0	2205.4	2426.6	2646.1	2966.4	3109.3	3233.7
Asia	Inland aquaculture	36796.2	39129.5	41106.2	42691.0	44536.7	46107.0	47943.6	49612.9	50566.8	52262.1
	Marine or coastal aquaculture	19192.3	20244.3	21214.5	21989.0	23485.5	24583.6	25119.1	25661.7	26946.5	27997.7
Europe	Inland aquaculture	468.4	464.5	475.7	468.8	514.0	521.7	512.6	544.8	556.0	560.5
	Marine or coastal aquaculture	2369.6	2299.4	2458.2	2498.7	2473.7	2524.2	2583.5	2708.7	2711.3	3007.3
Oceania	Inland aquaculture	4.2	3.7	3.5	4.2	4.1	4.3	4.9	4.5	4.7	5.3
	Marine or coastal aquaculture	181.6	177.3	183.2	173.5	200.3	201.2	199.7	204.8	220.4	241.5
Total		**63502.1**	**66935.8**	**70519.3**	**72893.5**	**76521.6**	**79566.5**	**82463.9**	**85219.2**	**87630.5**	**90861.8**

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- **Aquaculture production of animals and animals**

Total aquaculture		
	2021	Share
China	51.2	56.4%
India	9.4	10.3%
Indonesia	5.5	6.1%
Viet Nam	4.7	5.2%
Bangladesh	2.6	2.9%
Others	17.3	19.1%
Total	**90.9**	**100.0%**

Aquaculture in marine waters		
	2021	Share
China	19.4	56.0%
Viet Nam	2.1	6.0%
Indonesia	1.9	5.4%
Norway	1.7	4.8%
Chile	1.4	4.1%
Others	8.2	23.8%
Total	**34.7**	**100.0%**

Aquaculture in inland waters		
	2021	Share
China	31.8	56.6%
India	8.2	14.6%
Indonesia	3.6	6.5%
Viet Nam	2.7	4.7%
Bangladesh	2.4	4.3%
Others	7.5	13.3%
Total	**56.2**	**100.0%**

- **Aquaculture production of animals and animals + algae**

Total aquaculture		
	2021	Share
China	72.8	57.8%
Indonesia	14.6	11.6%
India	9.4	7.5%
Viet Nam	4.7	3.8%
Bangladesh	2.6	2.1%
Others	21.8	17.3%
Total	**126.0**	**100.0%**

Aquaculture in marine waters		
	2021	Share
China	40.9	58.6%
Indonesia	11.0	15.7%
Korea, Republic of	2.4	3.4%
Viet Nam	2.1	3.0%
Philippines	2.0	2.8%
Others	11.4	16.4%
Total	**69.7**	**100.0%**

Aquaculture in inland waters		
	2021	Share
China	31.9	56.7%
India	8.2	14.6%
Indonesia	3.6	6.5%
Viet Nam	2.7	4.7%
Bangladesh	2.4	4.3%
Others	7.5	13.2%
Total	**56.3**	**100.0%**

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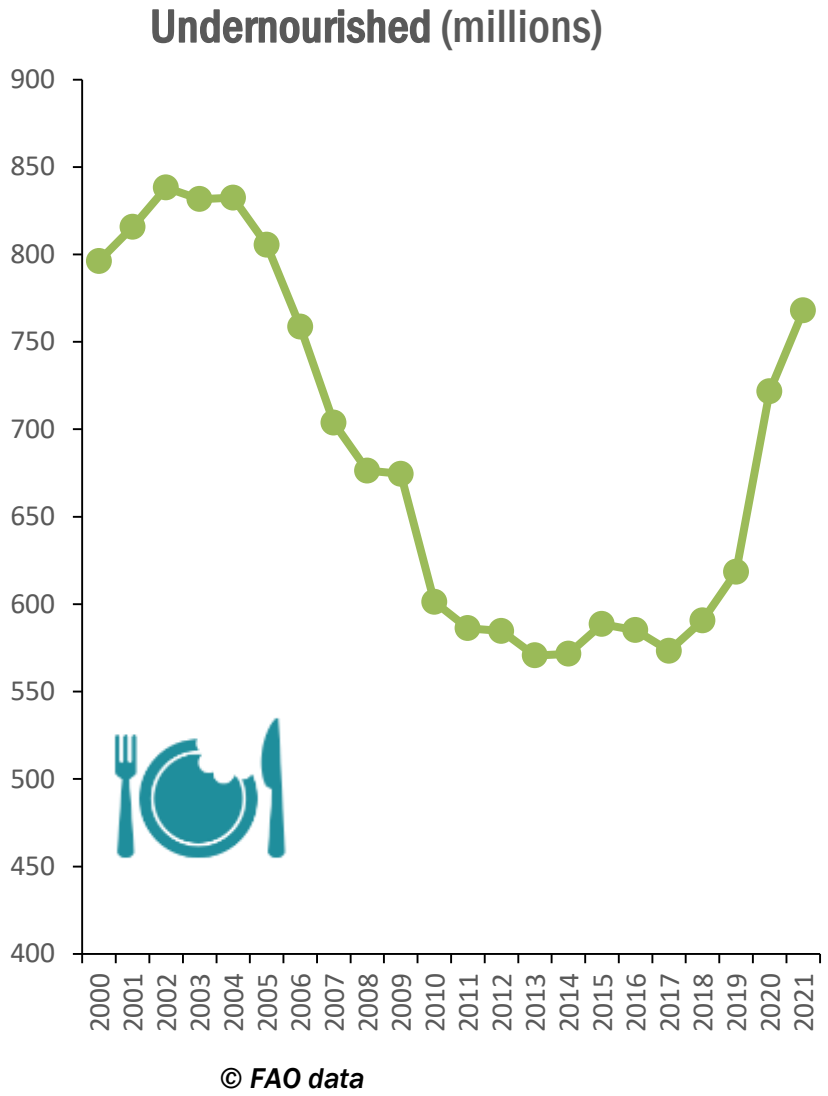
THE GROWING CHALLENGE TO FEED THE WORLD



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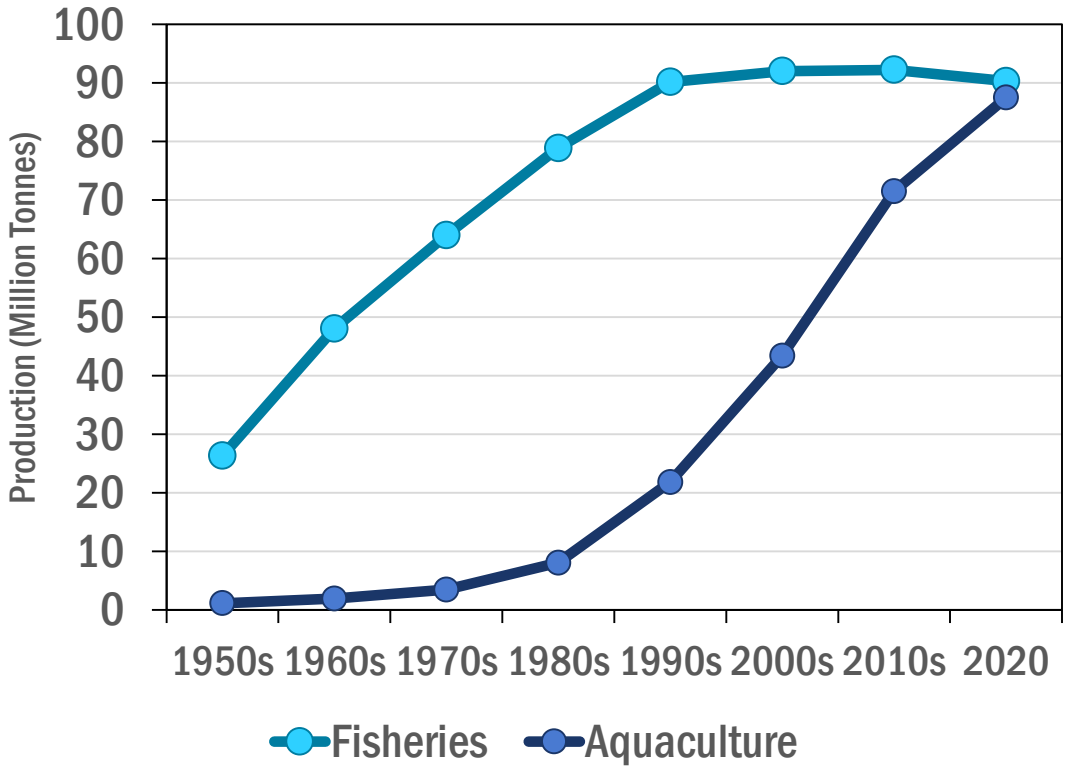
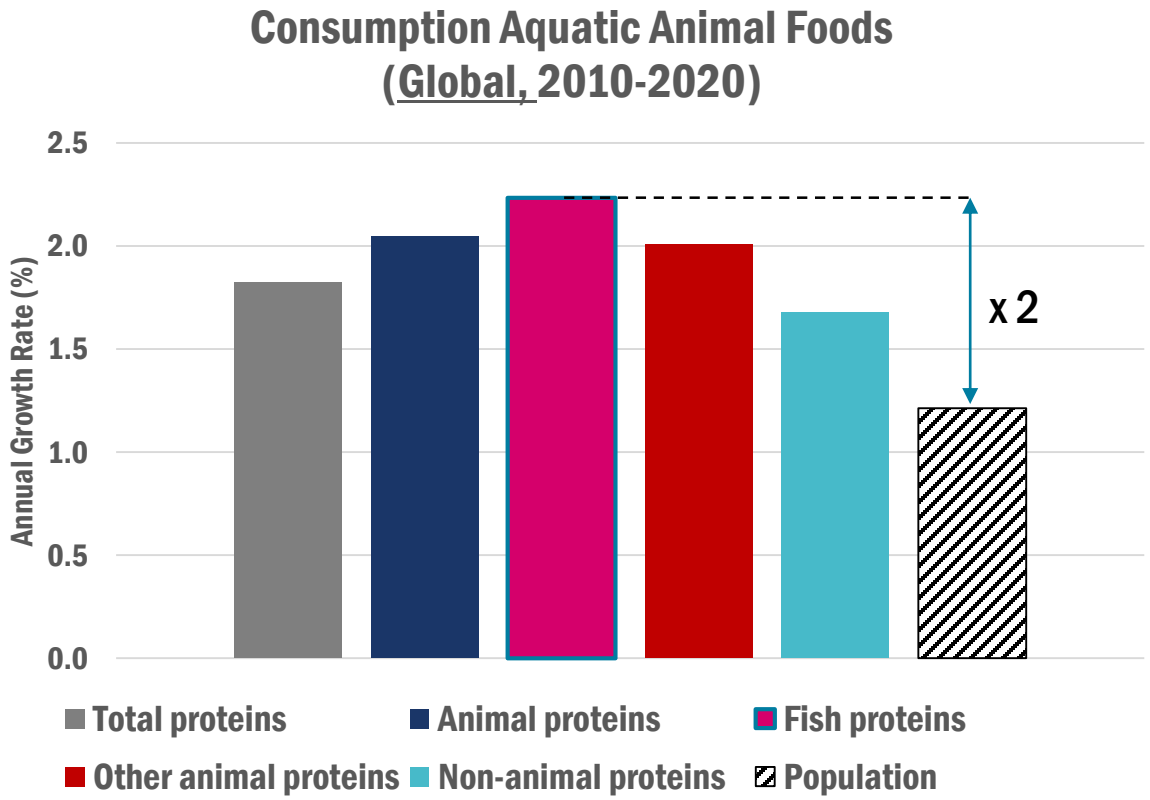
AQUATIC FOODS: TRANSFORMING AND IMPACTFUL







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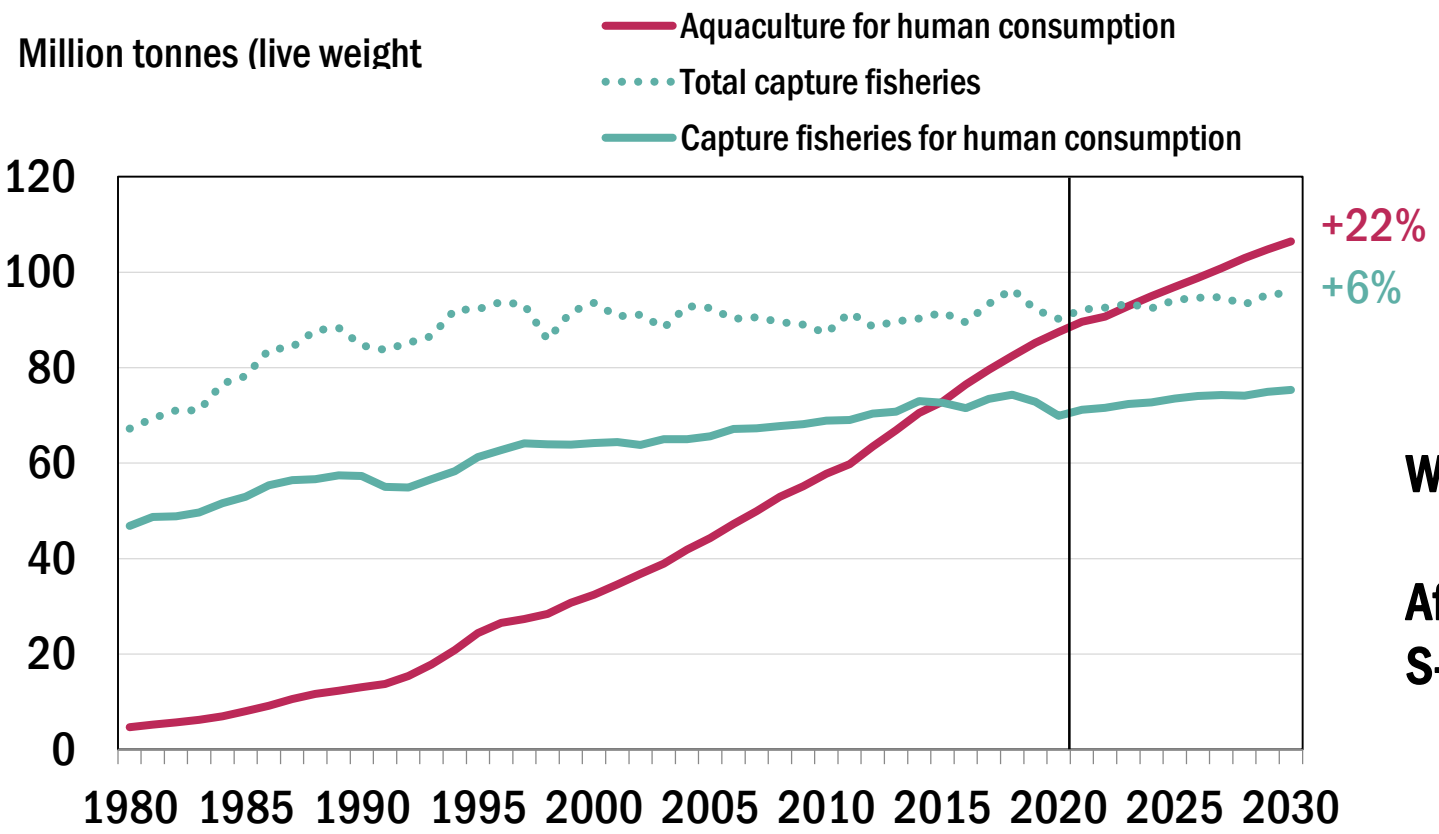
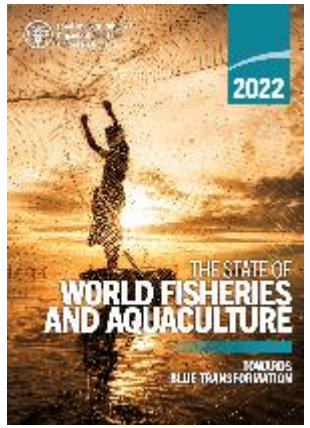
PRODUCTION OF AQUATIC ANIMALS EXPECTED TO GROW BY 14% BY 2030

Global capture fisheries and aquaculture production, 1990–2030, under *Business as Usual*





Present and Future FAO expectations of per capita consumption of fish

	2020		2030
World	20.2kg	→	21.4kg
Africa	9.9kg	→	9.8 kg
S-S Africa	8.6kg	→	8.4. kg

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FAO strategic framework

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SUSTAINABLE DEVELOPMENT GOALS

BETTER NUTRITION

End hunger, achieve food security and improved nutrition in all its forms (including promoting nutritious food and increasing access to healthy diets)

BN1: Healthy Diets for All	
BN2: Nutrition for the Most Vulnerable	
BN3: Safe Food for Everyone	
BN4: Reducing Food Loss and Waste	
BN5: Transparent Markets and Trade	

BETTER ENVIRONMENT

Protect, restore and promote sustainable use of terrestrial and marine ecosystems and combat climate change (reduce, reuse, recycle, residual management) through more efficient, inclusive, resilient and sustainable agri-food systems

BE1: Climate Change Mitigating and Adapted Agri-Food Systems	
BE2: Bioeconomy for Sustainable Food and Agriculture	
BE3: Biodiversity and Ecosystem Services for Food and Agriculture	

BETTER PRODUCTION

Ensure sustainable consumption and production patterns, through inclusive food and agriculture supply chains at local, regional and global level, ensuring resilient and sustainable and agri-food systems in a changing climate and environment

BP1: Green Innovation	
BP2: Blue Transformation	
BP3: One Health	
BP4: Small-Scale Producers' Equitable Access to Resources	
BP5: Digital Agriculture	

BETTER LIFE

Promote inclusive economic growth by reducing inequalities (urban/rural areas, rich/poor countries, men/women)

BL1: Gender Equality and Rural Women's Empowerment	
BL2: Inclusive Rural Transformation	
BL3: Achieving Sustainable Urban Food Systems	
BL4: Agriculture and Food Emergencies	
BL5: Resilient Agri-Food Systems	
BL6: Hand-in-Hand (HIH) Initiative	
BL7: Scaling up Investment	

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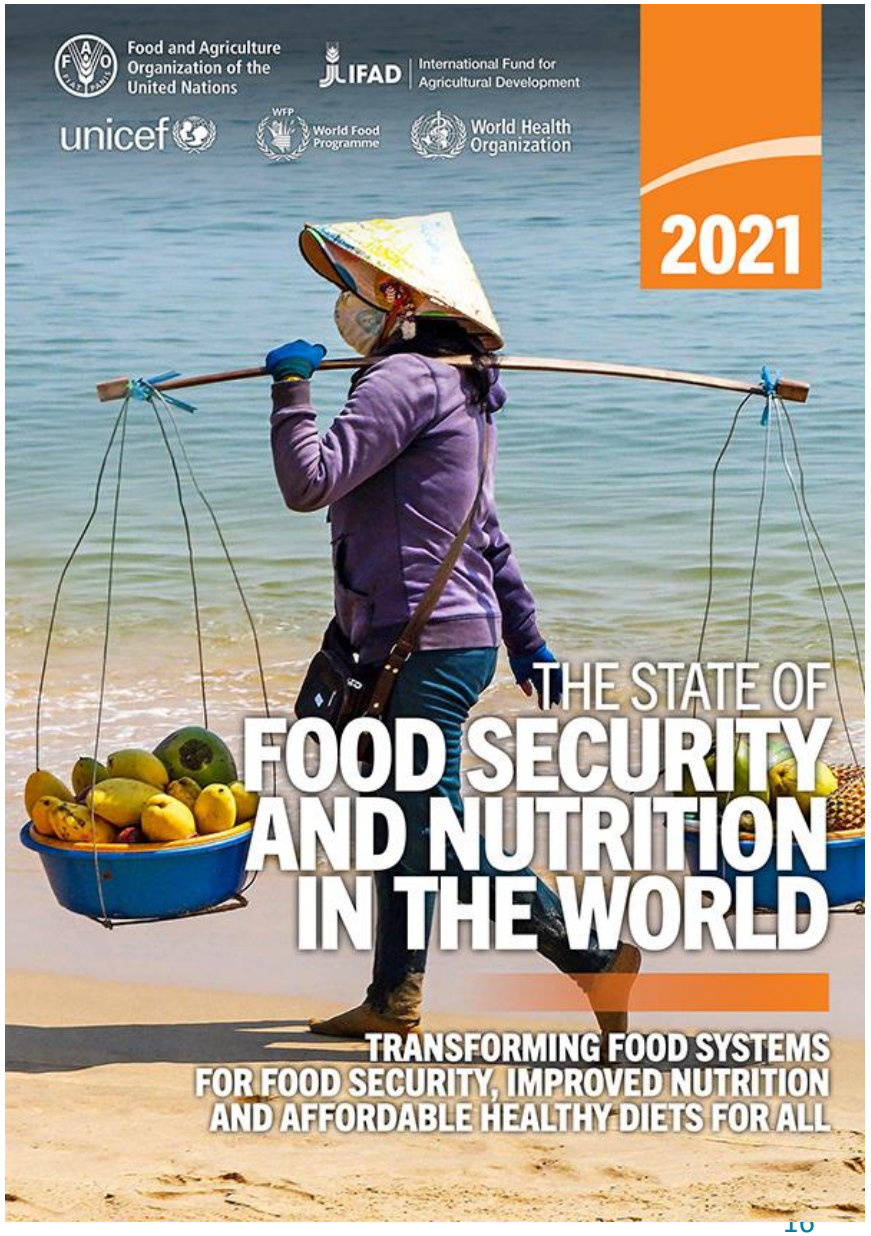
The State of Food Security and Nutrition in the World 2021

- In 2020, between 720 and 811 million people faced hunger
- Around **660 million people may still face hunger in 2030**, in part due to lasting effects of the COVID-19 pandemic on global food security – 30 million more people than in a scenario in which the pandemic had not occurred.
- Beyond hunger, nearly one in three people did not have access to adequate food in 2020
- Healthy diets are out of reach for 3 billion people
- The way forward: Food system transformation



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TOTAL AND PER CAPITA APPARENT CONSUMPTION OF AQUATIC FOODS BY REGION AND ECONOMIC CLASS, 2019

Region/economic class	Total aquatic food consumption *(million tonnes, live weight equivalent)*	Per capita aquatic food consumption *(kg/capita/year)*
World	**157.7**	**20.5**
World, excluding China	100.3	16.0
Africa	**13.1**	**10.0**
Americas	**14.8**	**14.6**
North America	8.3	22.7
Latin America and the Caribbean	6.4	9.9
Asia	**113.1**	**24.6**
Europe	**15.8**	**21.1**
Oceania	**1.0**	**23.2**
High-income countries	**32.0**	**26.5**
Upper-middle-income countries	**72.2**	**28.1**
Lower-middle-income countries	**50.0**	**15.2**
Low-income countries	**3.5**	**5.4**

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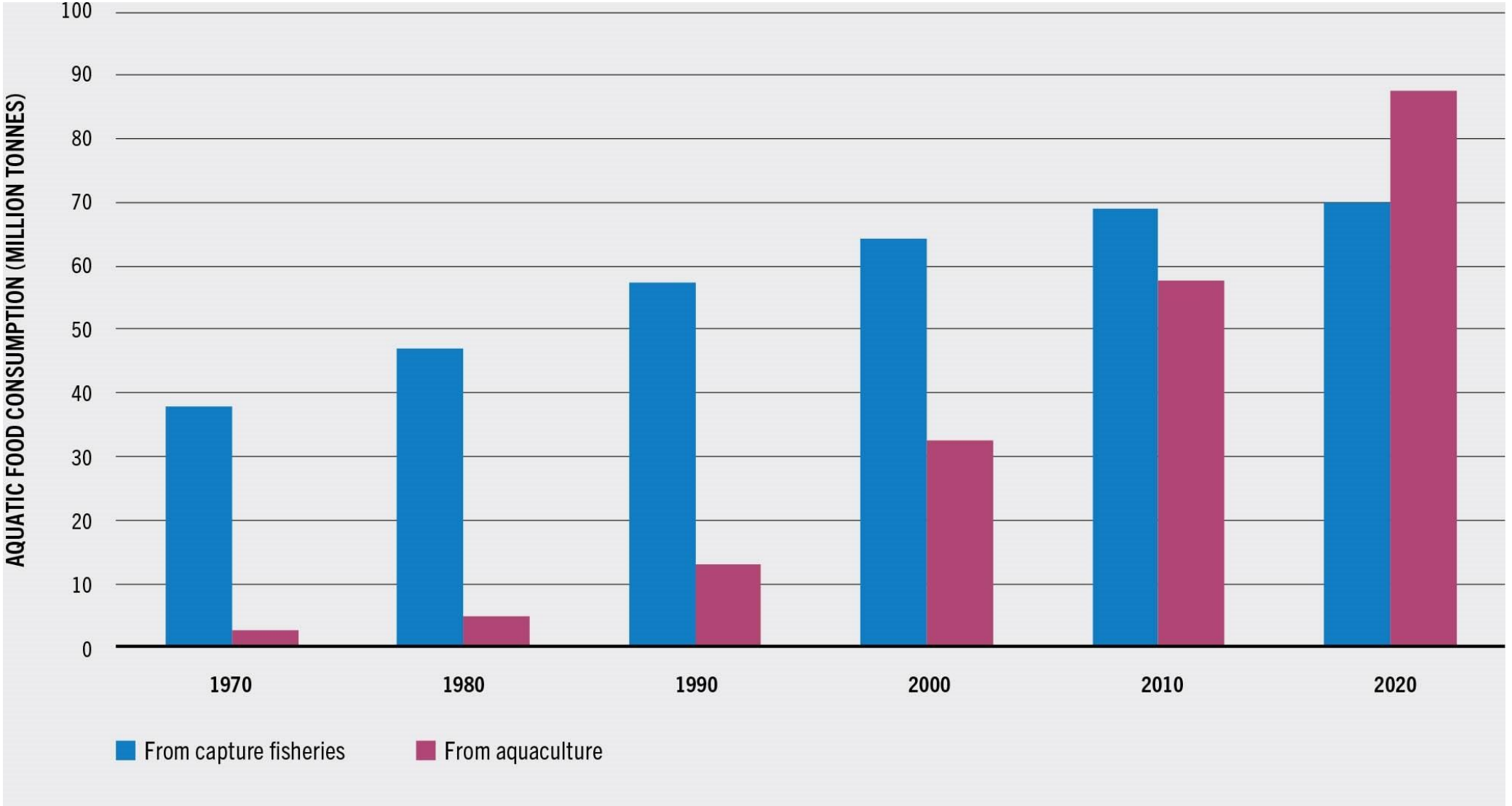
RELATIVE CONTRIBUTIONS OF AQUACULTURE AND CAPTURE FISHERIES TO AQUATIC FOODS AVAILABLE FOR HUMAN CONSUMPTION



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BLUE TRANSFORMATION

A roadmap for FAO´s work on aquatic food systems

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AQUATIC SYSTEMS ARE A POWERFUL SOLUTION: THE NEED FOR A BLUE TRANSFORMATION

OBJECTIVE 1

Sustainable aquaculture intensification and expansion satisfies global demand for aquatic foods and distributes benefits equitably.

OBJECTIVE 2

Effective management of all fisheries delivers healthy stocks and secures equitable livelihoods.

Supply and production

OBJECTIVE 3

Upgraded value chains ensure the social, economic and environmental viability of aquatic food systems.

Accessibility

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Feeding the world through aquaculture intensification and expansion.

Aquaculture expansion


Expanded area

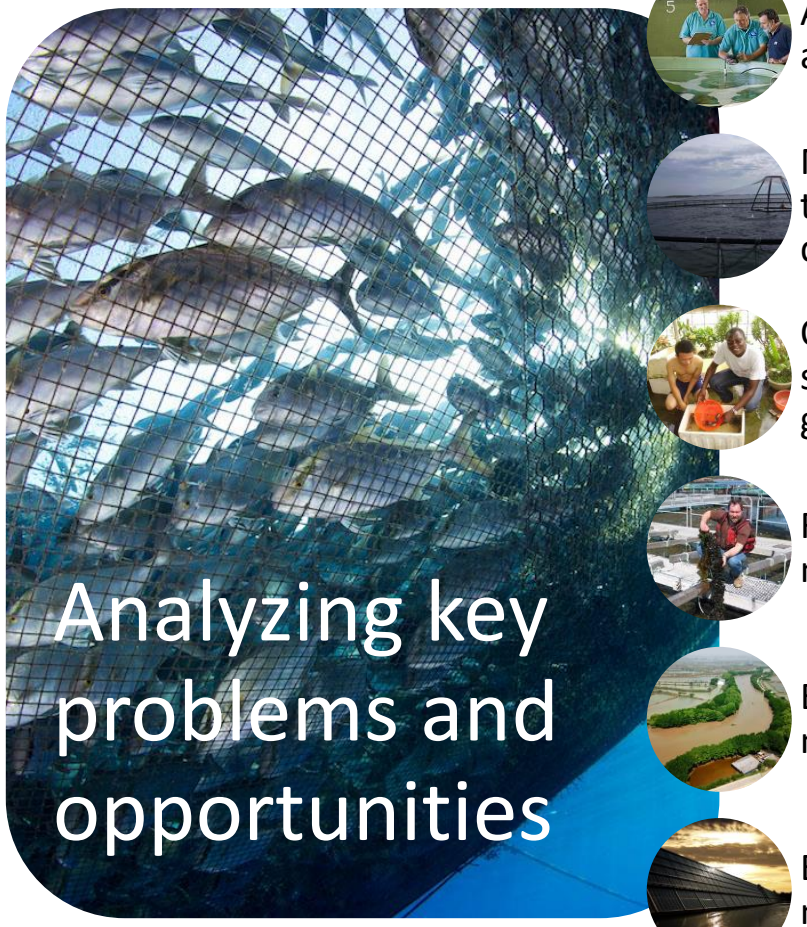
Diversified species

Diversified systems

Environmental restoration


Eco-tourism

Aquaculture intensification




Aquafeed supply and management

Modern technology and digitalization

Quality seed supply and genetic resources

Farm management

Effluent management


Energy management

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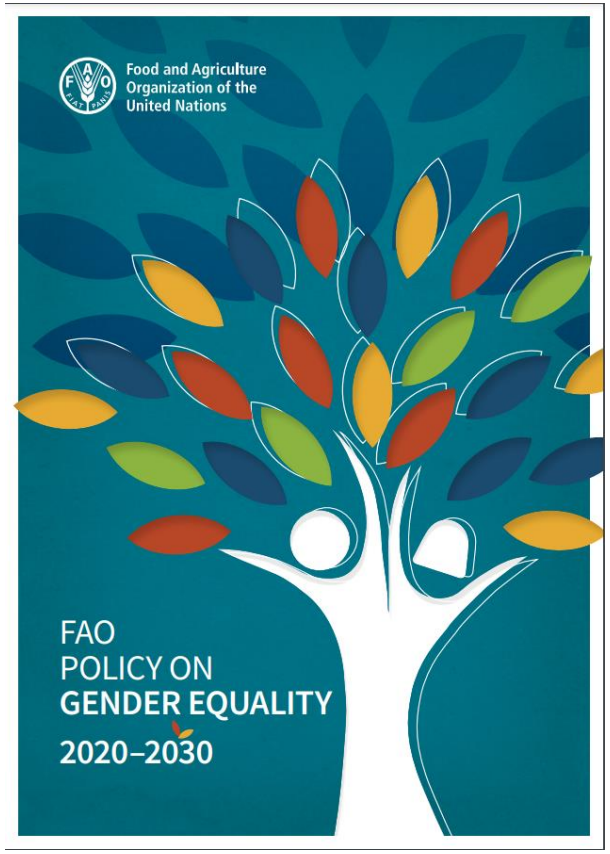
Cross-cutting and approaches

- Cross-cutting issues:
  - Mainstreaming nutrition
  - Empowering women
  - Attracting youth
  - Climate changes and biodiversity
- Approaches:
  - Participatory and partnering
  - Building capacity
  - Knowledge sharing
  - Policy support
  - Monitoring and data collection



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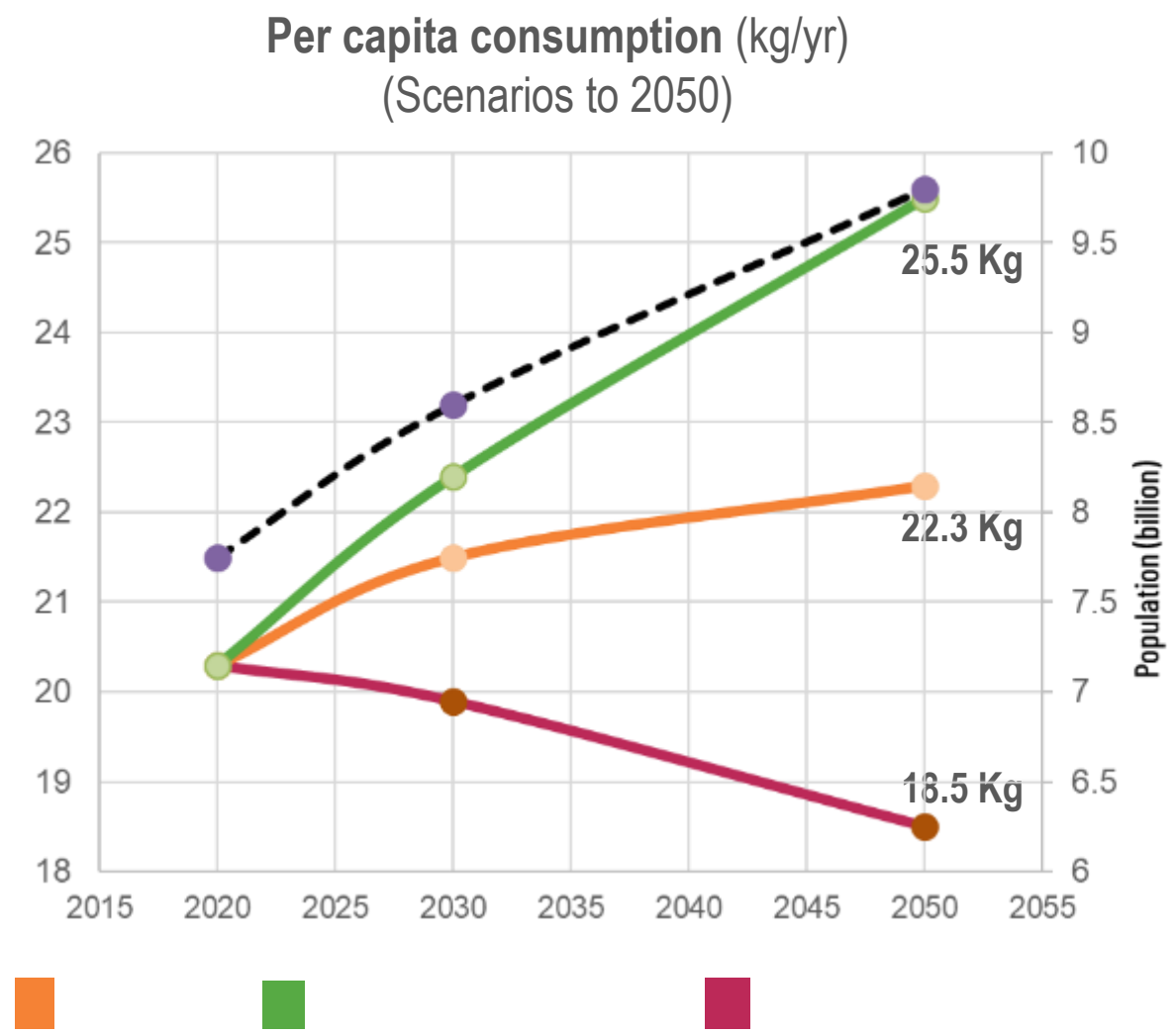
BLUE TRANSFORMATION: MEETING EXPECTATIONS



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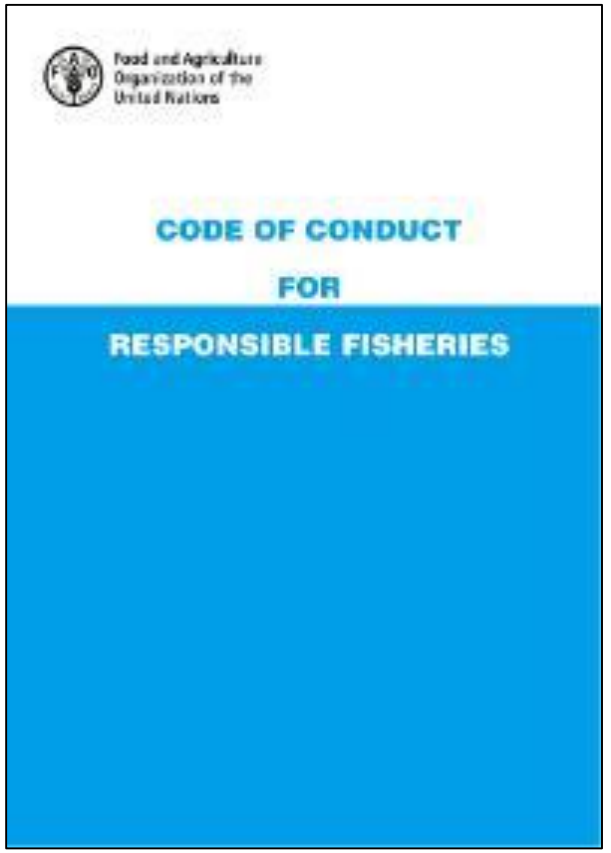
Guideline for Sustainable Aquaculture GSA

The Guidelines for Sustainable Aquaculture (GSA) will provide practical guidance to government authorities and policymakers in their efforts of:

- promoting the implementation of CCRF, and
- engaging and enabling aquaculture to effectively participate in the implementation of the 2030 Agenda for Sustainable Development.

More specifically, it will help FAO Members use the existing and upcoming FAO guidelines to develop their sustainable aquaculture by advancing their capacity development in this area. For this, the GSA will build on the lessons learned from a series of successful and unsuccessful aquaculture case studies.



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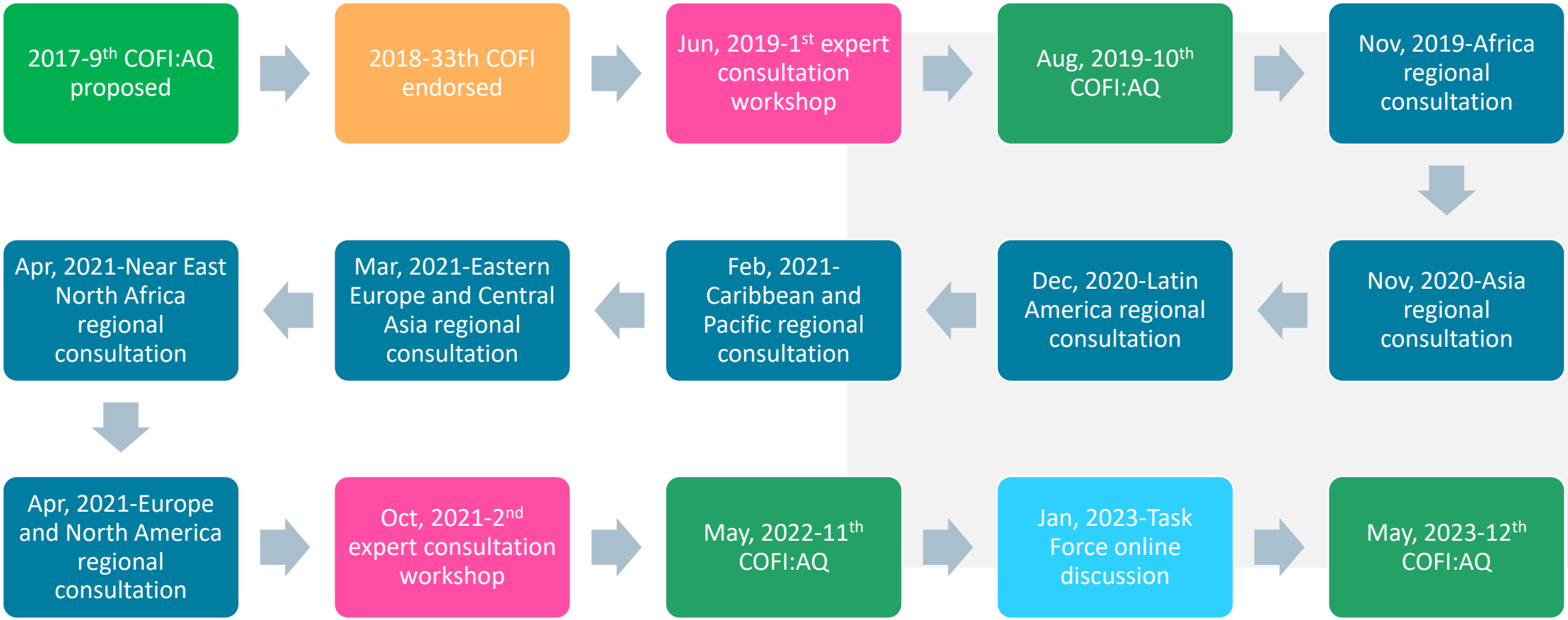
Guideline for Sustainable Aquaculture GSA



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Guideline for Sustainable Aquaculture GSA

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The way forward

- Review and update the challenges in aquatic food trade
- Enhance the national capacity building for fisheries and aquaculture
- Encourage Research, Education and Development support
- Promote global partnership
  - Global Sustainable Aquaculture Advancement Partnership (GSAAP)
  - https://www.fao.org/in-action/sustainable-aquaculture-partnership/en

https://www.fao.org/in-action/sustainable-aquaculture-partnership/en

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Discover

English

Global Sustainable Aquaculture Advancement Partnership (GSAAP)

Background Partners News Publications

Thank you very much!

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