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National Report on Strengthening Sustainable Aquatic Food Value Chains for Enhanced Food Security and Nutrition in Malaysia

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Malaysia

Bay of Bengal Programme Inter-Governmental Organisation

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National Report on Strengthening Sustainable Aquatic Food Value Chains for Enhanced Food Security and Nutrition in Malaysia

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1. Introduction and Context

1.1. Overview of the country's demographic and economic profile (fisheries)

Malaysia covers a total area of 330,122.5 km² consisting of two geographical regions, namely: West Malaysia (also known as Peninsular Malaysia) and East Malaysia[1]. The country's total coastline length is 8,840 km and total area of the exclusive economic zone is 548,800 km^2. The fisheries sector is vital to the economy and food security of Malaysia as it supports rural development by creating employment opportunities as well as serves as an important source of animal protein. In 2024, the gross domestic product from fisheries was 0.7% and the fish consumption was 48.1 kg/capita[2]. The Department of Fisheries Malaysia, under the Ministry of Agriculture and Food Security is the lead agency in the transformation of a sustainable and competitive fishery in the country. The two major components of the fisheries sector are marine capture fisheries (coastal and deep sea) and aquaculture. The greatest bulk of the fish landings come from the capture fisheries 72.8% with the rest from aquaculture 26.7%, while production from the inland fisheries is small[2].

Table 1.1: Summary of demographic and economic profile of Malaysia

Source	Data	Reference
EEZ area	548,800 km^2	Status Stok Ikan Marin Terpilih Mengikut Kawasan Pengurusan Perikanan Semenanjung Malaysia, 2024 Department of Fisheries Malaysia (DOF)
Coastal waters	373,500 km^2	
Territorial waters	161,200 km^2	
Length of coastline	8,840 km	Sixth National Report of Malaysia to the Convention on Biological Diversity (CBD)
Inland waters	1 190 km^2	CIA Factbook
Population	34.1 million (2024)	Department of Statistics Malaysia (DOSM)
Agricultural GDP	USD 34.6 billion (2024)	
Fisheries Gross Domestic Product GDP (year)	0.7 percent (2024)	
Fisheries in Agricultural GDP (year)	11.4 percent (2024)	

1.2. Key nutrition challenges

Malaysia faces multiple nutrition challenges, with adult overweight (30.5%) and obesity (23.1%) already widespread. Despite high per-capita fish consumption, Malaysia dances a persistent triple burden of malnutrition with rising child stunting (21.2%) and continuing micronutrient deficiencies, indicating that high fish availability alone has not translated into fully improved child nutrition outcomes[3].

Table 1.2: Nutrition indicators and prevalence

Indicator / Issue	Figure / Prevalence
Adult overweight & obesity	Overweight: 30.5%; Obesity: 23.1% (National Health and Morbidity Survey (NHMS) 2024)
Fish consumption	Mean adult consumption ≈ 1.0 serving/ person/day (≈65g edible portion) (National Health and Morbidity Survey (NHMS) 2024)
Child under nutrition (under-5)	Stunting increased from 17.7% (2015) to 21.2% (2022); Wasting increased from 8.1% (2015) to 11.0% (2022) Underweight rose from 12.4% (2015) to 15.3% (2022)
Triple burden in children	Coexistence of under nutrition, overweight (5.6%) (NHMS 2022) and micronutrient deficiencies in Malaysian children
Micronutrient deficiencies (children)	Despite 64.3% of children under five meeting minimum dietary diversity, 35.7% do not, alongside a high prevalence of anaemia (46.5%), indicating persistent micronutrient inadequacy (NHMS 2022)

Although adult fish consumption is relatively high, averaging about 168 g/person/day, this does not fully translate into improved nutritional outcomes[1]. Child under-nutrition has worsened, with stunting rising from 17.7% to 21.2% and underweight increasing as well. At the same time, Malaysian children experience the triple burden of malnutrition alongside persistent micronutrient deficiencies such as anaemia and subclinical vitamin A deficiency[3].

1.3. Summary of the importance of aquatic foods in national diets and livelihoods

Aquatic foods are central to Malaysian diets, providing one of the highest per-capita fish consumption levels in Southeast Asia (≈42–51 kg/year), and contributing a major share of animal-source protein for households. Self Sufficiency Ratio (SSR) in 2024 is 91.6% which is the highest animal protein source in Malaysia[3]. Fish is consumed frequently across all ethnic groups and regions, forming a culturally essential and affordable protein source, especially for coastal and rural communities. The fisheries and aquaculture sectors also support substantial livelihoods engaging over 130,000 workers in capture fisheries and aquaculture and sustain income, food security, and local economies in coastal areas[2].

2. Country Snapshot Table

Table 2.1: Country Snapshot

Indicator	Year	Value	Source
Population (millions)	2024	34.1 million	1
GDP per capita (USD)	2024	US $11,867	2
Fish production - capture ('000 tonnes)	2024	1,392.13 tonnes	2
Fish production - aquaculture ('000 tonnes)	2024	511.86 tonnes	2
Inland vs. marine share (%)	2024	Marine (127,315t) 99.3%, Inland 0.7% (9,434t)	2
Top 3 capture species	2024	Marine: Sardines (94,234 t), Mackerels (79,685 t), Lizardfish (46,869 t) Inland: Bagrid Catfish (1,180 t), River Carp (935 t), Giant Freshwater Prawn (673 t)	2
Top 3 aquaculture species	2024	Fresh: Catfish (45,018 t), Tilapia (29,723 t); Bagrid Catfish (20,949 t) Marine: Seaweed (220,267 t), Seabass (60,909 t), Whiteleg shrimp (38,668 t)	2
Employment in fisheries & aquaculture ('000, men/women)	2024	134.7 (Men and women)	2
Exports (value, USD)	2023	1,728,926.03	3
Imports (value, USD million)	2023	1,101,845.02	4
Per capita fish consumption (kg/year)	2024	48.1	2
% of animal protein from fish	2024	Fish is one of the major contributors of animal protein to the Malaysian population. Fish consumption is high, estimated at 48.1 kg/person/year	2
Estimated fish loss & waste (%)	ND		
Women's participation in post-harvest (%)	-	Disaggregated data is not available (Despite their involvement and contributions, these roles are not well captured in official statistics; The Women's Empowerment in Fisheries and Aquaculture Index (WEFI) methodology has not been used in the context of women in Malaysia's fisheries sector)	
Key compliance measures (food safety, traceability, HACCP, CDS, PSMA)	-	Ministry of Health Implemented relevant measures through Food Act 1983 and its regulations, including	2,5

Indicator	Year	Value	Source
		Food Regulations 1985 and Food Hygiene Regulations 2009. DOF's Fish Quality Certificate (FQC) and MyGAP, while Ministry of Health certifies HACCP system for fishery export plants. Malaysia mandates: Valid licence to conduct fishing activities, landing declarations, aquaculture farm registration, and product traceability for domestic and export. Implement PSM to regulate entry of foreign fishing vessel into Malaysia; issues Catch Certificates, Processing Statements (for relevant market) and export permit for marine capture, aquaculture, and processed seafood	
Major climate/environment risks		Climate Change Action Plan Fisheries Sector 2024 - 2030 focus on 5 pillars which are low-carbon development, adaptation & climate resilience, green technology adaption, national & international collaboration and strengthen climate governance & institutional capacity	6

3. Aquatic Food Production and Utilization

3.1. Trends in capture fisheries (inland and marine) and aquaculture

Figure 3.1 below shows the trend of inland capture fisheries from 2015 to 2024. From 2015 to 2021, production remained relatively stable, fluctuating between about 5,100 and 6,100 tonnes, with a slight decline around 2017 and no clear growth during this period. Starting in 2022, there was a significant increase, with production rising sharply to over 8,000 tonnes and continuing to grow in 2023 and 2024, reaching nearly 9,700 tonnes[2].

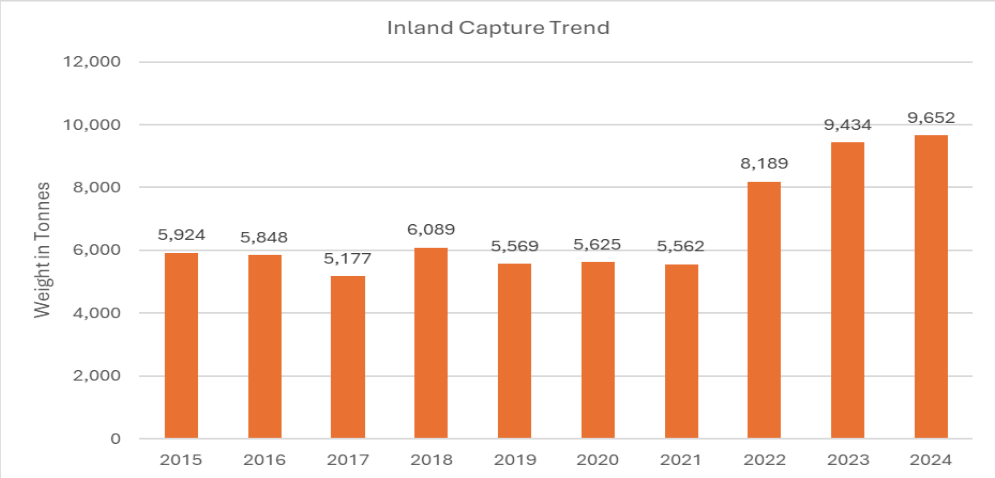

Figure 3.1: Trends in inland capture fisheries

Figure 3.2 shows marine capture production increased from approximately 1.48 million tonnes in 2015 to a peak of about 1.57 million tonnes in 2016. Thereafter, a gradual downward trend was observed, with production remaining relatively stable between 2017 and 2019 before declining more noticeably from 2020 to 2023, reaching a low of approximately 1.27 million tonnes. In 2024, marine capture production recorded an increase to about 1.39 million tonnes, indicating a recovery following several consecutive years of decline[2].

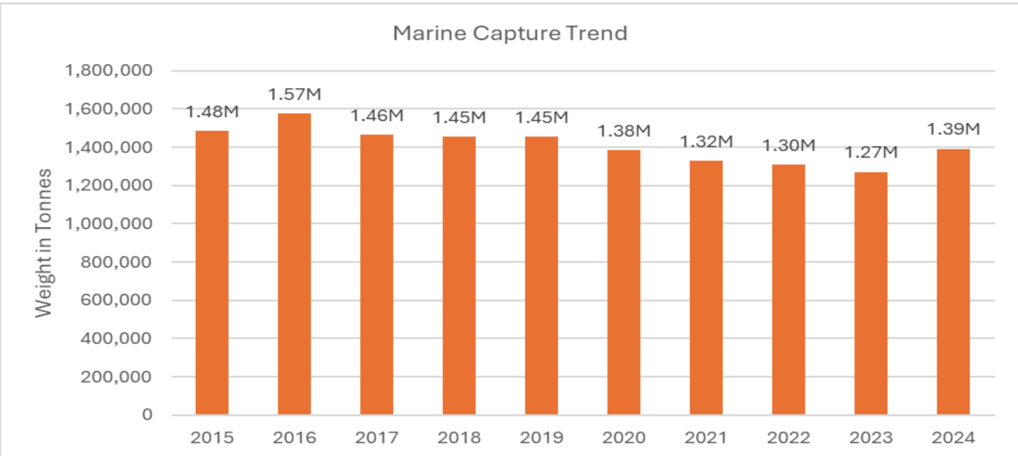

Figure 3.2: Trends in marine capture fisheries

Figure 3.3 Illustrates the aquaculture production trend from 2015 to 2024, showing some fluctuations over the years. Production was recorded at about 506 thousand tonnes in 2015, then declined to around 391 thousand tonnes by 2018. From 2019 to 2021, output remained relatively stable at around 400–417 thousand tonnes. A sharp increase occurred in 2022, reaching the highest level of about 573 thousand tonnes, before decreasing again in 2023. In 2024, production rose slightly to approximately 511 thousand tonnes, indicating a moderate recovery after the drop from the 2022 peak[2].

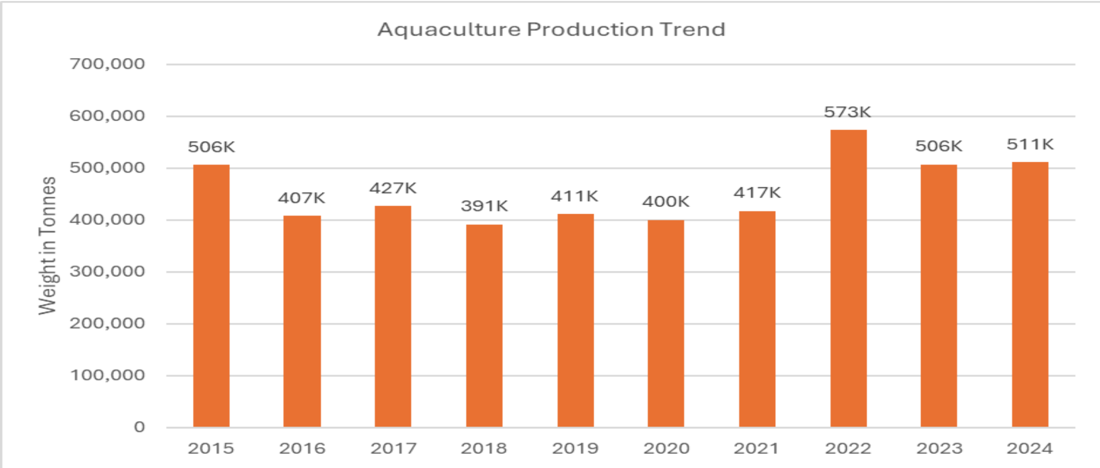

Figure 3.3: Trends in aquaculture production

3.2. Main species and product forms

Based on the data provided, marine capture fisheries continue to dominate Malaysia's fish production in terms of volume. Sardines recorded the highest landings at 94,234 tonnes, followed by mackerel at 79,685 tonnes and lizardfish at 46,869 tonnes, indicating their significant contribution to national marine fish supply. In contrast, inland fisheries production remains comparatively lower, with bagrid catfish contributing 1,180 tonnes, river carp 935 tonnes, and giant freshwater prawn 673 tonnes. This disparity highlights the greater dependence on marine resources for bulk fish supply, while inland fisheries play a complementary role, particularly in supporting local livelihoods, freshwater protein sources, and niche markets[2].

Table 3.1: Top three species in production

	Marine species	Weight In tonnes	Inland species	Weight in tonnes
1	Sardines	94,234	Bagrid Catfish	1,180
2	Mackerel	79,685	River Carp	935
3	Lizardfish	46,869	Giant Freshwater Prawn	673

3.3. Major production zones and seasonal characteristics

Malaysia's main marine production zones include the Straits of Malacca on the west coast, which supports high landings of demersal and small pelagic species, and the South China Sea zone on the east coast, together with the productive waters of Sabah and Sarawak in East

Malaysia. Seasonal fishing patterns are shaped by the Northeast Monsoon (November–March), which reduces fishing activity along the east coast due to rough seas, while the west coast remains comparatively stable. The Southwest Monsoon (May–September) allows higher fishing effort and pelagic landings along the east coast. These spatial and seasonal characteristics are described in Malaysia's fisheries profile published by FAO and the Department of Fisheries Malaysia[2].

3.4. Processing, preservation and domestic consumption practices

Processing and preservation in Malaysia consist of traditional methods such as drying, salting, fermenting, and fish paste production, alongside modern processing for frozen, cured, canned and value-added seafood products. Small-scale processors continue to play an important role in coastal and rural communities, while larger export-oriented plants follow HACCP and fish-quality certification requirements regulated by the Ministry of Health and Department of Fisheries Malaysia respectively. Domestic consumption is high, with Malaysians relying on fish as one of the major protein source and preferring fresh, chilled, and minimally processed seafood. National fisheries statistics show that per capita fish consumption in Malaysia remains among the highest in Southeast Asia [2, 7].

4. Trade and Market Dynamics

4.1. Overview of fish exports (species, value, markets)

The figures below show that cuttlefish form the highest export by volume, highest export is to China[4].

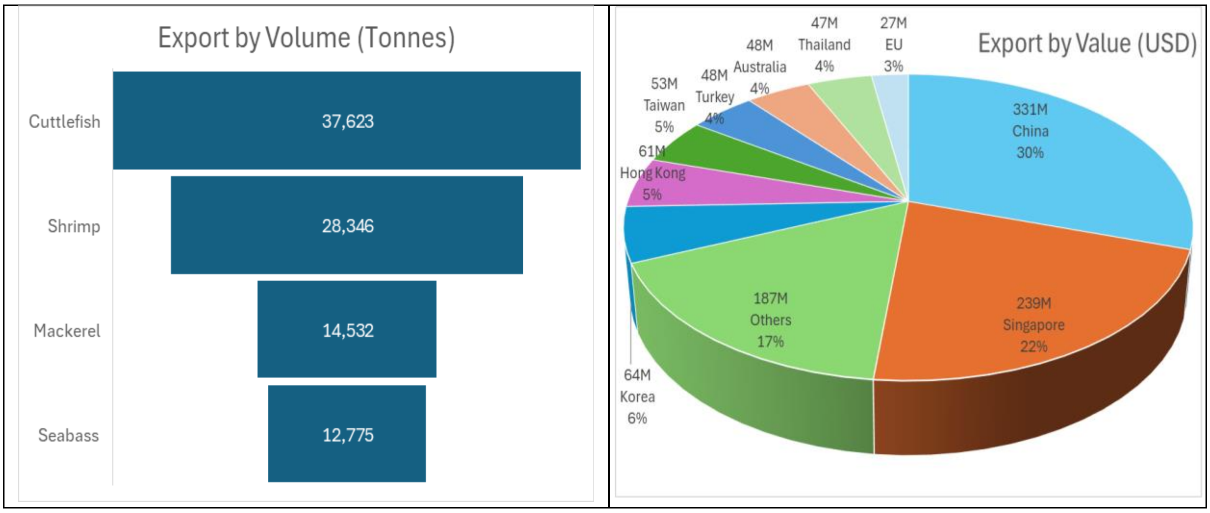

Figure 4.1: Top exports by volume (commodity) and value (partner country)

Imports are mainly from China, Vietnam and Thailand and include cuttlefish, mackerel and shrimp[4].

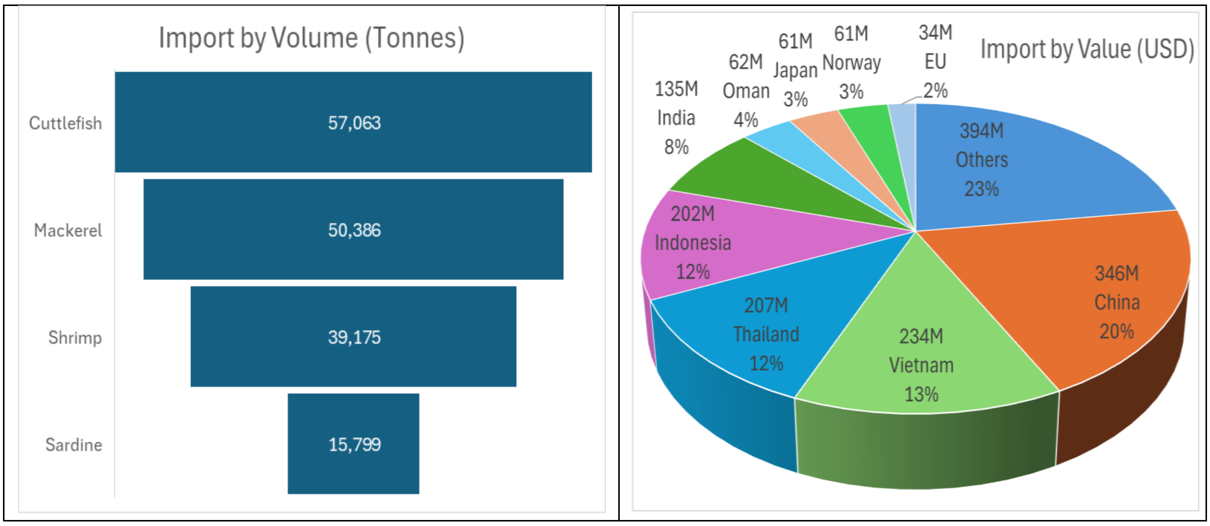

Figure 4.2: Top imports by volume (commodity) and value (partner country)

The following table provides information on the top value added products[4].

Table 4.1: Value added products

Irrespective of spp. Import value in 1000 USD (Top)	
Fish, fresh, chilled or frozen	585,392.22
Fish meat, whether or not minced, frozen	208,864.65
Fishmeal	81,577.09
Fish body oils	58,548.48

4.2. Key import flows and their drivers

Malaysia imports significant volumes of marine species (e.g., cuttlefish, mackerel, shrimp) to satisfy demand for fish in Malaysia. Currently, Malaysia continues to face notable imbalances between domestic fish supply and consumption, as indicated by self-sufficiency ratios (SSR) for major fisheries commodities. While some high-value species such as tuna (108.3 %), crab (100.5 %), river catfish (100%), and seabass (123%) have SSRs above 100 per cent—meaning domestic output meets or exceeds demand—many widely consumed fish species still fall below this threshold, highlighting reliance on imports to satisfy local needs. For example, mackerel (41.7 %), sardine (92.9 %), cuttlefish (67.8 %), and shrimp (35.7 %) recorded SSRs well under 100 per cent, showing that local production is insufficient, and imports are necessary to fill the gap in domestic consumption. This pattern reflects Malaysia's overall significant fish demand driven by high per-capita consumption and preference for diverse marine species, with domestic fisheries unable to fully satisfy market requirements without external supply[7]. The total aquatic food supply is given in the figure below.

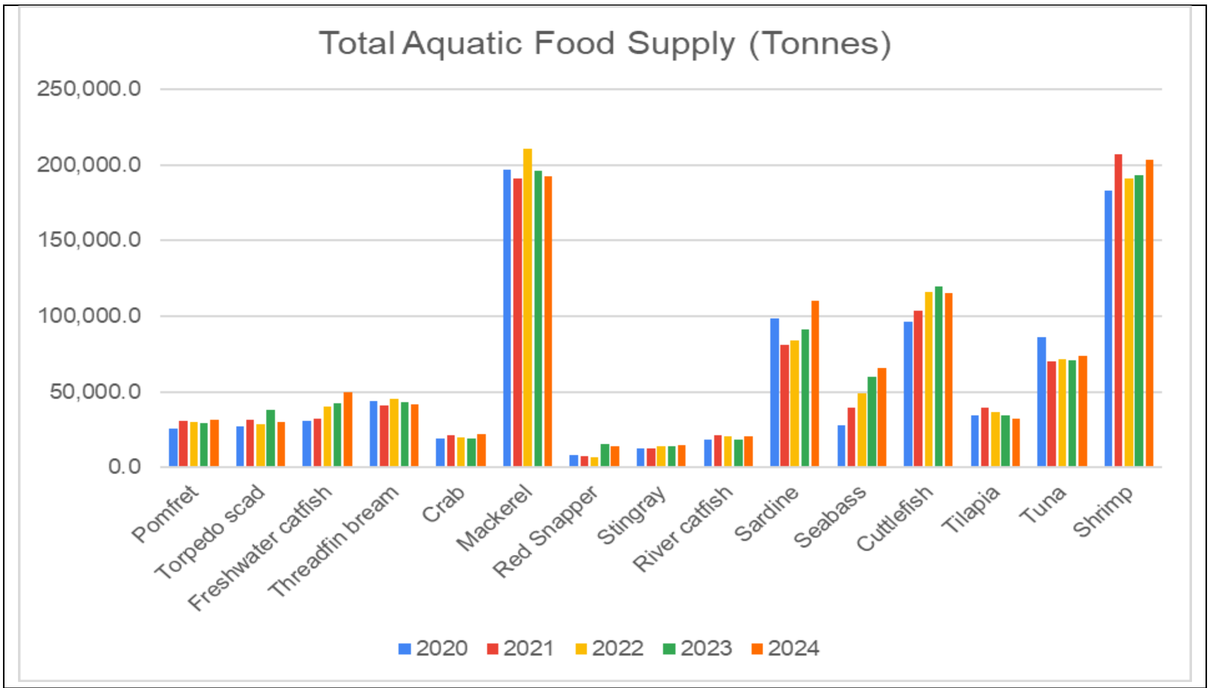

Figure 4.3: Total aquatic food supply

The following charts show the food balance (production, exports and imports)

Figure 4.4: Aquatic Food Balance

4.3. The role of domestic markets in providing affordable fish to households

Local wet markets and coastal small-scale supply chains are the main channels supplying affordable fresh and small whole fish to households, especially outside premium urban retail[8].

4.4. Barriers and opportunities (tariffs, non-tariff measures, certification, and traceability).

Barriers include rising import volumes, variable sanitary and phytosanitary measures and compliance costs for exporters; opportunities lie in adopting traceability and export-grade certification to access higher-value markets[5].

5. Nutritional Contribution of Fish

5.1. Fish's share in total protein intake

Fish is one of the major animal-source protein in Malaysia, contributing substantially to per-capita animal protein intake and remaining a culturally important protein source (48.1kg/capita)[2].

5.2. Key micronutrients supplied (Ca, Fe, Zn, I, Se, Vitamin A, Vitamin B12, DHA/EPA)

Consumption of fish (especially small whole species and oily fish) for supply of calcium, iron, zinc, iodine, selenium, B12 and DHA/EPA, critical for maternal and child nutrition[9].

5.3. Role of small fish species consumed whole

Small whole fish eaten with bones/organs provide dense micronutrients (Ca, Fe, Vit B12) and are an affordable route to reduce micronutrient gaps in vulnerable groups. Small fish eaten whole (e.g., *ikan bilis*/anchovy, small scads and other small pelagic) play an important role in Malaysian diets because they are widely consumed, affordable, culturally familiar, and when eaten whole supply highly bioavailable minerals (calcium, iron, zinc) and important micronutrients (vitamin A, B12) and fatty acids [10, 11].

5.4. Evidence from national nutrition surveys or literature

Table 5.1: Evidence on nutrition from literature/ surveys

Source	Key Evidence	Reference
FAO – Food Balance Sheets (Malaysia)	Provides national per-capita fish supply (≈35–46 kg/year), confirming the high availability of fish, but does not report micronutrient intake from fish.	Food and Agriculture Organization of the United Nations. (2024). FAOSTAT food balance sheets: Malaysia – fish and seafood supply. FAO. https://www.fao.org/faostat/
SEAFDEC – Fisheries Country Profile: Malaysia	Confirms fish as one of the major sources of animal protein in Malaysian diets and reports national fish consumption trends; no nutrient-intake data provided.	Southeast Asian Fisheries Development Center. (2023). Fisheries country profile: Malaysia. SEAFDEC. https://www.seafdec.org/fisheries-country-profile-malaysia/
Malaysia Government – Adult Nutrition Survey (MANS)	According to the NHMS 2024, only 16.8% of adolescents (10-19	Ministry of Health Malaysia. (2024). National Health and

Source	Key Evidence	Reference
	years) and 23.0% of adults (>18 years) meet the recommended level of 1 serving per day of fish and seafood based on the Malaysian Dietary Guidelines 2020.	Morbidity Survey:Nutrition https://www.moh.gov.my/

6. Fish Loss and Waste (FLW)

6.1. The main points along the chain where losses occur (landing, transport, processing, retail)

Losses are believed to be found along the supply chain which may include landing sites (post-harvest handling), transport and inadequate cold chain, from primary distribution and small-scale processing or retail. However, the degree of loss in each stage could not be ascertained due to lack of fish loss and waste study in Malaysia.

6.2. Available estimates of quantity and value lost

No clear data.

6.3. Causes (infrastructure, handling, storage)

Key causes may be due to inadequate cold-chain infrastructure, poor handling at landing sites, and lack of low-cost storage/processing for small producers[12].

6.4. Mitigation practices or innovations

Mitigation includes improved clean water/ice/logistics, on-site cold storage, value-adding (drying/fermentation) of small fish and better post-harvest training programs[12].

7. Socio-economic and Gender Dimensions

7.1. Employment generated by the sector (fisheries, aquaculture, post-harvest)

The total number of fishers in 2024 was estimated to be about 117,883 with an additional 16,873 people engaged in aquaculture[2].

7.2. The role of women in processing, trading, and marketing

Women play a prominent role in processing, small trading and retail markets, especially in post-harvest activities and local fish marketing.

7.3. Constraints faced by small-scale actors (e.g. access to finance, technology)

Small actors in Malaysia’s capture fisheries face persistent constraints, including limited access to formal finance, cold-chain technology, formal markets, and product certification, which restrict their ability to scale operations and build resilience. A significant portion of the marine capture fisheries workforce consists of small-scale and artisanal fishers, operating predominantly in inshore and coastal waters with small boats and traditional gear, serving local and regional markets rather than large industrial supply chains. These characteristics limit their participation in high-value markets and formal value chains, contributing to vulnerability to post-harvest losses, market volatility, and climate risk[13].

8. Sustainability and Resilience

8.1. Summary of stock status where available (overfishing, recovery, habitat pressures)

Some coastal stocks are under pressure from overfishing and habitat loss while others show stable yields; monitoring gaps remain. There is evidence that many fish stocks, especially demersal and coastal marine stocks, in Malaysian waters have been over-exploited, with declining biomass, catch-per-unit-effort (CPUE), and signs of resource depletion[14].

8.2. Environmental risks (pollution, waste, carbon intensity)

Key risks include coastal pollution, habitat degradation (mangroves, coral reefs), and emissions from along supply chains and fuel-dependent fleets[14].

8.3. Climate risks and adaptation measures

Climate impacts include shifting species distribution and storm risks; adaptation actions highlighted include diversification, early warning and improved aquaculture practices[6].

8.4. Resilience factors (diversification, community practices, and early warning systems).

Resilience is supported by diversified livelihoods (capture + aquaculture), community co-management and regional early-warning/extension services[6].

9. Governance and Policy Framework

9.1. Overview of national fisheries and aquaculture policies

Table 9.1: National Fisheries and Aquaculture Policies

Policy / Instrument	**Key Focus / Provisions**	**Relevant Authority / Reference**
National Agrofood Policy 2021–2030 (NAP 2.0)	Modernisation of fisheries & aquaculture; food security; technology adoption; value-chain upgrading; climate resilience.	Ministry of Agriculture and Food Industries Malaysia. (2021). *National Agrofood Policy 2021–2030 (NAP 2.0).* https://www.kpkm.gov.my/
Department of Fisheries Strategic Action Plan	Ensuring sufficient, affordable and safe fisheries products; enhance sustainability of fisheries resources; increase economic contribution of fisheries sector; prioritise good governance in fisheries and aquaculture.	Department of Fisheries Malaysia.
Fisheries Act 1985	Legal basis for fisheries management, licensing, zoning, conservation measures, aquaculture regulation, and enforcement in Malaysian waters.	Government of Malaysia. (1985). *Fisheries Act 1985 (Act 317).* Government Printer.
Malaysian Standard	Good Aquaculture Practice GAqP)- Aquaculture Farm General Guidelines; Seaweed Cultivation – Code of Practice; MS 2467: 2017- Good Organic Aquaculture Practice – First Revision	SIRIM Malaysia / MS 1998: 2017; SIRIM Malaysia / MS 2467 : 2012; SIRIM Malaysia / MS 2467:2017
Codes of Good Aquaculture Practice (CoP)	Standards for safe, sustainable marine & freshwater aquaculture (shrimp, finfish, freshwater fish, hatcheries); supports certification & export compliance.	Department of Fisheries Malaysia. (2020). *Codes of Good Aquaculture Practices (CoP).* https://www.dof.gov.my/

9.2. Food safety and quality assurance systems

Food safety in Malaysia's fisheries sector relies on national sanitary and hygiene standards, inspection and certification systems for export-oriented products, and increasing emphasis on traceability and SPS compliance to meet domestic and international market requirements[5]. Food Act 1983 and its Regulations are the legal instruments to regulate fish and fishery products for human consumption including food safety, quality and labelling requirements, irradiation treatment provisions, compoundable offences fall under the jurisdiction of Ministry of Health Malaysia.

9.3. Participation in international agreements (e.g., WTO fisheries subsidies, PSMA, CITES)

Malaysia participates actively in regional and international fisheries governance frameworks, including cooperation under ASEAN and SEAFDEC**,** and aligns national measures with key FAO instruments such as the Code of Conduct for Responsible Fisheries (CCRF). Malaysia is also a WTO Member and has deposited our instruments of acceptance to the Agreement on Fisheries Subsidies, and is a Party to CITES, implementing trade controls for listed aquatic species. Although Malaysia has not ratified the Port State Measures Agreement (PSMA)**,** it applies port state measures which are consistent with regional guidelines[15].

9.4. Institutional arrangements for managing value chains

Institutional arrangements consist of various federal and state agencies and stakeholders coordinating production, trade and safety. Regional bodies (SEAFDEC/FAO) contribute toward capacity building and technical assistance to improve national value chain management[15].

10.Key Challenges and Opportunities

10.1. Most pressing constraints (production, markets, nutrition, gender, governance)

Production:

- Fishery resources are depleting due to overfishing both by local fisherman and encroachment of foreign fishermen.
- Uncertainty of fish production due to the impact of the climate change
- High production cost in both sectors aquaculture and capture fisheries.

Markets:

- Domestic production cannot meet growing demand; heavy dependence on imports (China, Vietnam, Thailand)
- Price volatility; resource depletion tightening supply
- Variable SPS requirements raising compliance costs
- Small-scale actors lack access to formal markets and certification systems

Nutrition:

- Persistent child undernutrition: stunting rising to 21.2%, underweight increasing
- Micronutrient deficiencies: anaemia, subclinical vitamin A deficiency in children
- Triple burden (undernutrition + overweight/obesity + micronutrient deficiencies)
- High adult fish consumption not translating into improved child nutrition outcomes

Gender:

- Women's roles in post-harvest, trading, retail largely invisible in official statistics

Governance:

- Overfishing and habitat pressures require stronger enforcement and monitoring
- Not a PSMA party (though applying aligned measures).

10.2. Promising opportunities or best practices that could be scaled up

Production:

- High fish consumption, strong domestic demand incentivises sustainable aquaculture growth.
- Increasing aquaculture output (carp, grouper, oysters, shrimp)
- Strong policy environment: NAP 2.0, DOF Strategic Plan 2021-2030, Climate Change Action Plan Fisheries Sector 2024-2030, Malaysian Standard for Good Aquaculture Practice and related certification programmes.
- Potential for improved cold-chain along the supply chain, modern processing, value addition.

Markets:

- Wet markets and coastal supply chains ensure affordable fish access for households
- Opportunities for traceability, HACCP, CDS to access high-value export markets (EU, China, Turkiye, US, Singapore)

- Expanding value-added processing (frozen, canned, fishmeal, oils) enhances local industry capacity

Nutrition:

- Fish is one of the major animal-protein source and culturally important food; per-capita consumption among highest in SE Asia (46–56 kg/year)
- Small whole fish (*ikan bilis*, small scads) supply dense calcium, iron, zinc, B12 and DHA/EPA
- Affordable route to improve micronutrient intake for vulnerable groups
- Potential for nutrition-sensitive aquaculture (molluscs)
- Continuous R&D to produce local Ready-to-Use Therapeutic Food (RUTF)[5]

Gender:

- Women play significant roles in processing and local markets—strong base for empowerment interventions
- Opportunity to introduce gender-responsive programmes, credit schemes, and skills upgrading
- Potential to improve women's involvement in certification, traceability, and value-added processing

Governance:

- Strong policy framework: Fisheries Act 1985, Food Act 1983, NAP 2.0, DOF Strategic Plan 2021-2030, Climate Change Action Plan Fisheries Sector 2024-2030, DOF's Policy and Procedure, Malaysian Standard for Good Aquaculture Practice and related certification programmes.
- Active participation in regional bodies (ASEAN, SEAFDEC) supports capacity building and harmonisation
- Opportunities to enhance traceability, digital vessel monitoring, and co-management in SSF.
- Implement Port State Measure (PSM) to regulate entry of foreign fishing vessels into Malaysia.

11.Priority Policy Recommendations

11.1. Key actionable policy recommendations linking aquatic foods, value chains and Food Security and Nutrition (FSN - six dimensions)

Table 11.1: Actionable policy recommendations in six dimensions

	Dimension	Recommendation	Rationale	Action Points
1	Fish Loss & Waste (FLW)	Strengthen cold-chain and post-harvest handling at landing sites and reduce losses at landing/ transport/ primary distribution	These are observed to be concentrated at landing/ transport and poor cold-chain; limited low-cost storage for small producers increases spoilage and value loss.	Increase the number of small-scale, modular cold rooms/ ice plants at priority landing sites. Continuous training programme for fishers/ processors on handling, chilling, packaging. Support micro-loans or grants for community cold storage.
2	Gender Inclusion	Make post-harvest and market support explicitly gender-responsive (data, finance, training)	Women are involved in processing/trading activities.	Conduct gender audit to quantify women's roles and barriers. Support women's producer groups/ co-ops for collective processing and market access.
3	Compliance & Trade Readiness	Scale traceability & export-grade certification (HACCP, CDS), and support SMEs to meet SPS requirements	Export markets require HACCP, traceability and catch documentation; small actors face compliance cost barriers. Improving traceability increases market value and	Subsidised certification support for clusters of small processors. Digital traceability pilot project through inter-agency collaboration-issued catch/ processing certificates

	Dimension	Recommendation	Rationale	Action Points
			reduces rejection risk.	Training on SPS compliance and simple record-keeping for exporters.
4	Environmental Sustainability	Promote selective gears, MPAs/co-management and habitat protection alongside sustainable aquaculture	Coastal stocks under pressure, habitat degradation (mangroves/reefs) and declining CPUE require both fisheries management and supply diversification.	Enforce/expand spatial measures (no-take zones, seasonal closures) with fisher co-management Restore mangroves and critical habitats with community engagement and job components Sustainable aquaculture
5	Nutrition Contribution	Promote small whole fish value-chains & nutrition-sensitive marketing to improve micronutrient intakes	Small whole fish eaten with bones/organs are an affordable route to reduce micronutrient gaps, especially for children and women. High per-capita consumption doesn't translate to child nutrition gains; purposeful interventions can close that gap.	Develop and certify affordable, nutritious fish-based products (e.g., Q-Fish, anchovy powder) specifically targeted for malnourished children, and integrate these products into government's social safety net programmes such as the Supplementary Food Programme (RMT) and the Food Basket Assistance Programme and etc..
6	Climate Resilience & Readiness	Integrate climate risk management into aquaculture and	Marine: rising sea temperatures, coral bleaching,	Strengthen climate governance & institutional

	Dimension	Recommendation	Rationale	Action Points
		small-scale fisheries planning (early warning, diversification, insurance)	reduced fish stocks Aquaculture: floods, drought, salinity change, diseases Inland: prolonged droughts, falling water levels	capacity. Low-carbon development. Adaptation & climate resilience. Green technology adoption. National & international collaboration

11.2. Recommendations (specific, feasible, and linked to national priorities)

Table 11.2: References linked to national priorities

	Dimension	Recommendation	Linked National Priority
1	Fish Loss & Waste (FLW)	Strengthen cold-chain & post-harvest handling at landing sites and reduce losses at landing/ aquaculture farm / transport/ primary distribution	National Agrofood Policy (NAP 2.0) (value-chain upgrading); National Food Security Policy Action Plan 2021-2025; DOF post-harvest extension; Codes of Good Aquaculture Practice for hygienic handling.
2	Gender Inclusion	Make post-harvest & market support explicitly gender-responsive (data, finance, training)	Ministry of Agriculture programmes under NAP 2.0; DOF extension services; link to national gender & rural livelihoods initiatives.
3	Compliance & Trade Readiness	Scale traceability & export-grade certification (HACCP, CDS), and support SMEs to meet SPS requirements	Food Act 1983, Food Regulations 1985 & Food Hygiene Regulations 2009; DOF Fish Quality Control; Codes of Good Aquaculture Practice; DOF export facilitation.
4	Environmental Sustainability	Promote selective gears, MPAs/co-management and	Fisheries Act 1985 (management & licensing); DOF Strategic Plans; NAP

	Dimension	Recommendation	Linked National Priority
		habitat protection alongside sustainable aquaculture	2.0; Codes of Good Aquaculture Practice; SEAFDEC regional guidance.
5	Nutrition Contribution	Promote small whole fish value-chains & nutrition-sensitive marketing to improve micronutrient intakes	Align with Ministry of Health nutrition strategies; NAP 2.0 (food security); DOF support for community aquaculture; use FAO/SEAFDEC guidance on small fish/nutrition.
6	Climate Resilience & Readiness	Strengthen climate governance & institutional capacity. Low-carbon development. Adaptation & climate resilience. Green technology adoption. National & international collaboration	National Agrofood Policy (NAP 2.0); DOF Strategic Plans; Climate Change Action Plan Fisheries Sector 2024-2030

12.Provide the traffic-light scoring for the six key dimensions

Table 12.1: Traffic light score for the six key dimensions

	Dimension	Score	Colour	Rationale
1	Fish Loss & Waste (FLW)	2		Significant losses at landing, transport, and small-scale processing due to inadequate cold-chain and lack of low-cost storage. No national FLW estimate; disease-related losses also noted.
2	Gender Inclusion	2		Women play major roles in processing and trading but are largely invisible in national data; no WEFI data; persistent barriers to finance, technology, and formal markets.
3	Compliance & Trade Readiness	4		HACCP, FQC, traceability and CDS systems exist; DOF mandates logbooks, landing declarations and export documentation. But SMEs face high compliance costs.
4	Environmental Sustainability	3		Coastal stocks under pressure; declining landings; habitat degradation (mangroves, reefs); pollution; monitoring gaps. Sustainability tools exist with slight limitations on enforcement and stock health.
5	Nutrition Contribution	3		High fish availability and high adult consumption; small fish provide dense micronutrients. But child malnutrition (stunting, anaemia, Vit A deficiency) persists and fish intake not translating into improved outcomes.
6	Climate Resilience & Readiness	3		Clear climate risks (rising sea temperatures, coral bleaching, floods, drought, salinity change, diseases). Some adaptation measures noted. Key initiative such as Central climate data hub, GHG accounting capacity,artificial reefs, coral restoration, species impact studies, Climate-resilient aquaculture & early warning systems.

Traffic Light Scoring Scale

1 Bad	2 Poor	3 Average	4 Good	5 Excellent

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