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Overview of the Global Seafood Industry and Its Significance for Food Security and Economic Development

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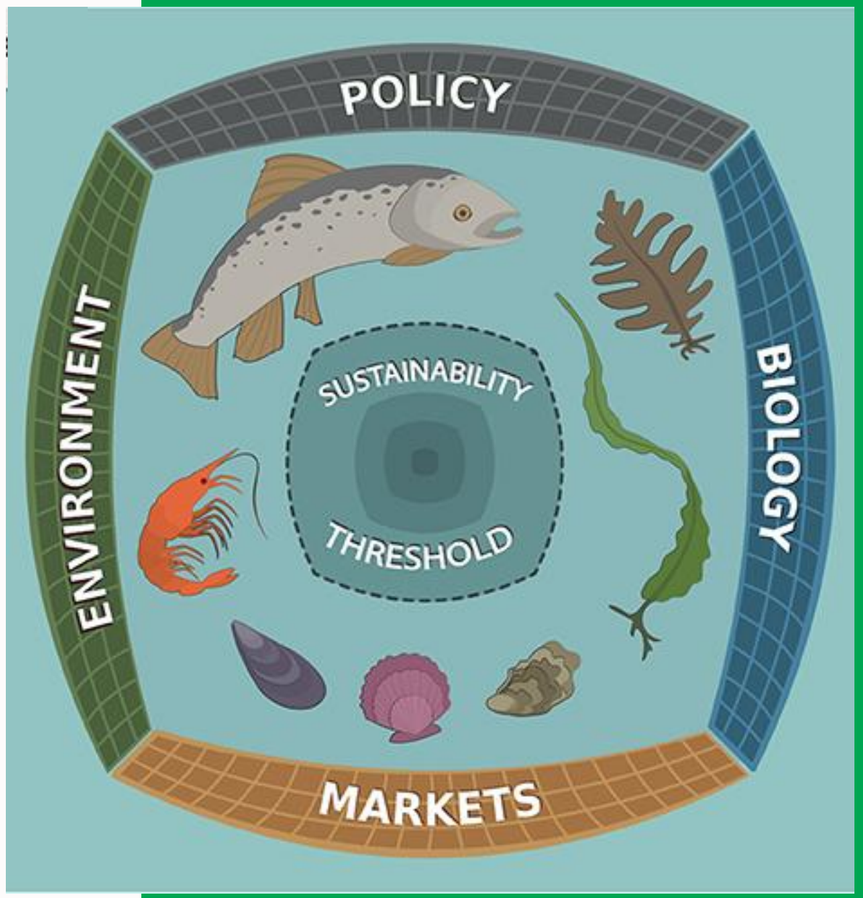
Outline

01 The importance of seafood

02 Global seafood production trends

03 Major players in the industry

04 Seafood supply chain



Broitman et al. (2017)

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1. The importance of Seafood

- The seafood industry is critically important for food security, economic stability, and environmental health.
- It provides a major source of protein for billions worldwide, supports livelihoods, and contributes to local and national economies.
- Moreover, it plays a vital role in maintaining healthy marine ecosystems and supporting coastal communities.

Visit: https://www.youtube.com/watch?v=dD91gxk7eDE

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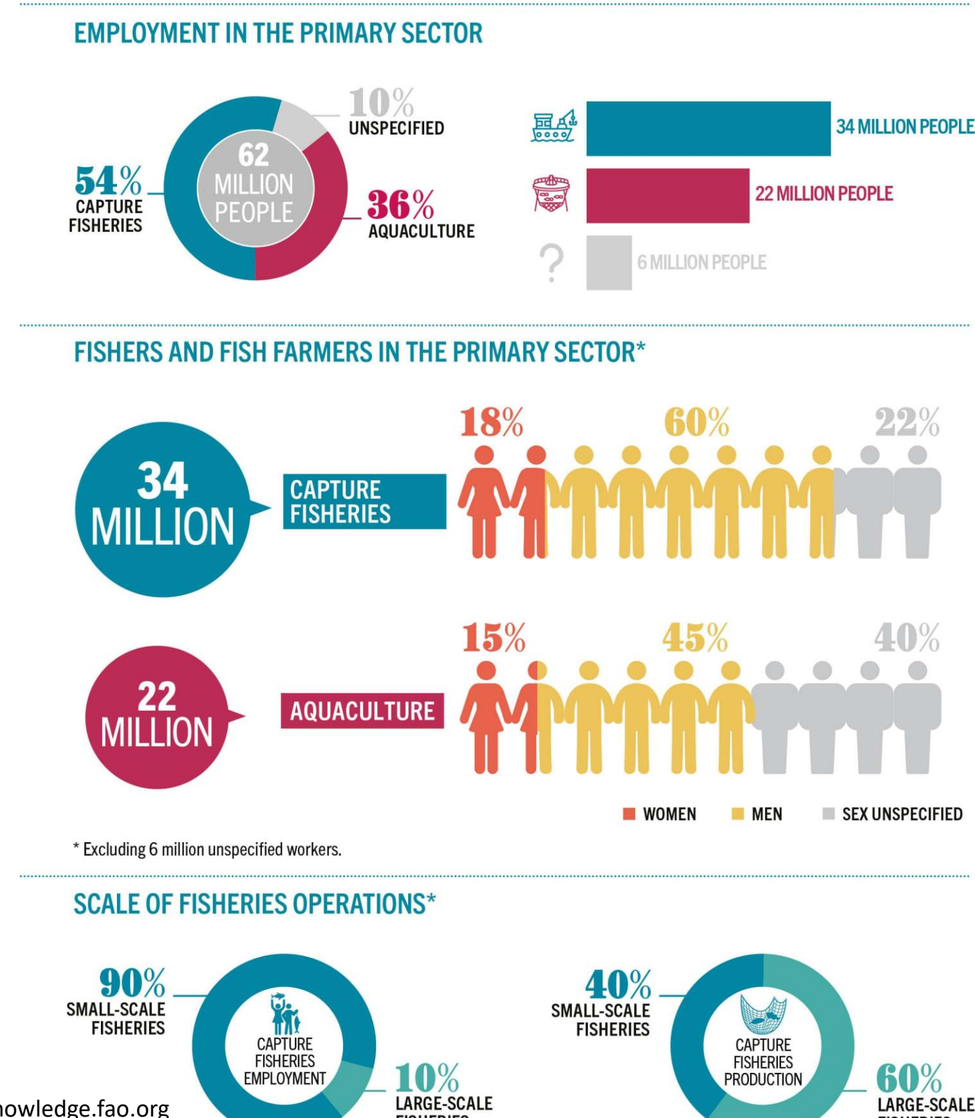
a . Economic and Social Significance (1)

- Employment and Livelihoods: Over **59 million people** work directly in fisheries and aquaculture, with millions more in processing, distribution, and retail → **Small-scale fisheries support ~90% of fishers globally**, particularly in developing nations.
- The **number of fishermen in Indonesia** reached approximately **3 million people** (KKP, 2022). The majority are marine fishermen, totaling around 2.4 million people (79.2% of the national total).
- Global Trade: Seafood is one of the most traded food commodities, valued at **$164 billion annually**. Nations like Norway, China, and Vietnam rely heavily on exports for economic growth.
- In Indonesia, fisheries industry contributed significantly to the **national GDP**, reaching approximately **2.66%** in 2023.
- The fisheries sector also provided significant **non-tax state revenue** (PNBP), with realizations nearing **IDR 1 trillion** in the first half of 2024.



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a. Economic and Social Significance (2)

- In 2024, there was a **trade balance surplus in fishery commodities** of up to 9.1% compared to 2023. There was an **increase in export value** during 2024, reaching USD 5.95 billion or a rise of 5.7% compared to the previous year, along with a **decrease in import value** of 19.8% compared to 2023.
- The fisheries industry has **great potential** to be developed **through a blue economy approach**, with a target export value of marine and fishery products reaching USD 8.5 billion by 2029.

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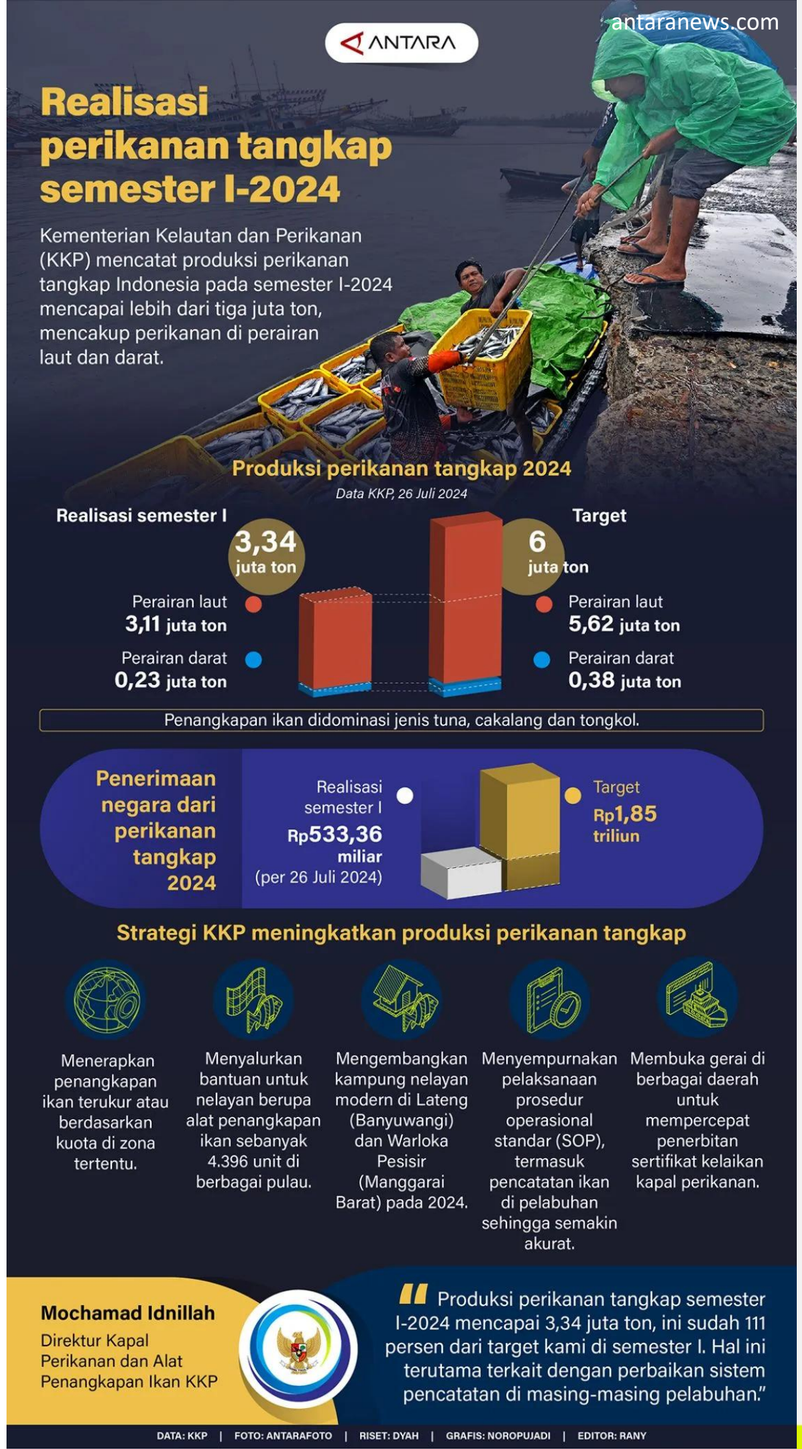

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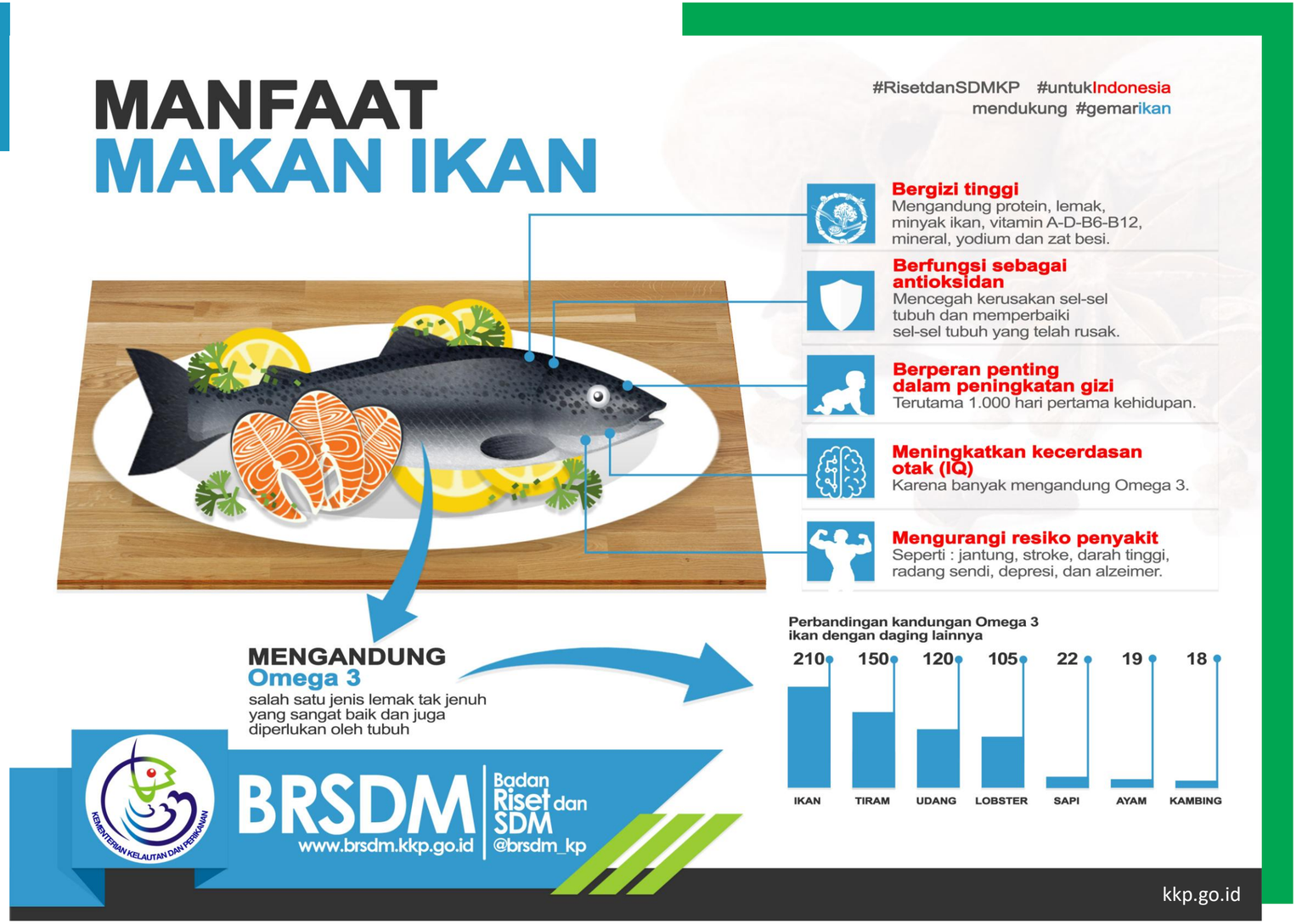
b. Nutritional value & food security (1)

- Protein and Micronutrients: Seafood provides 20% of animal protein for 3.3 billion people. Fatty fish (e.g., salmon, mackerel) are critical sources of omega-3s, vitamin D, and iodine, addressing malnutrition and cognitive health.



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b . Nutritional value & food security (2)

- Vulnerable Populations: Coastal communities and low-income regions depend on seafood as an affordable protein source. Climate change and overfishing threaten this lifeline.
- Seafood plays a crucial role in combating malnutrition, particularly stunting in children, due to its rich protein and micronutrient content. Improving access to affordable seafood can help address food insecurity and improve nutrition.
- Seafood, especially fish, is a vital source of protein and nutrients for many Indonesians, contributing as much as 50% of their animal protein intake. It's also an affordable protein source for marginalized households.
- Seafood plays a crucial role in Indonesian food security, contributing significantly to both household protein intake and the national economy. Indonesia is a major seafood producer and consumer, with fish being a staple food, particularly in coastal regions.

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c . Cultural & Traditional Roles

- Heritage: Fishing practices and seafood cuisines are deeply tied to cultural identities (e.g., Japan's sushi, Scandinavia's pickled herring).
- Coastal Communities: Seafood sustains traditions, festivals, and social cohesion in regions like Southeast Asia and the Mediterranean.


japan.travel


honest-food.net


unilleverfoodsolutions.co.id


kebudayaan.kemdikbud.go.id


Italian culture of Tonnara - pulitzercenter.org


Sumbanese traditional fishing - lelewaturesortsumba

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d. Environmental Stewardship (1)

- Ecosystem Services: Fisheries and aquaculture can support biodiversity (e.g., seaweed farming for carbon capture) but also risk habitat destruction if mismanaged

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d. Environmental Stewardship (2)

- Sustainability Challenges: Over 35% of global fish stocks are overfished. The industry must balance production with ocean health to meet SDG 14 (Life Below Water)

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Visit: https://www.youtube.com/watch?v=YGaFNZzjCXI

d. Innovation & Future Opportunities

- Aquaculture Advancements: Offshore farming, recirculating systems, and algae-based feeds reduce environmental impacts.
- Blue Economy Initiatives: Investments in sustainable practices (e.g., marine protected areas, traceability tech) aim to reconcile economic growth with ecological limits
- The **Blue Economy in Indonesia** is a concept of sustainably utilizing marine resources to drive economic growth while preserving the health of marine ecosystems. It involves various maritime-based industries, including fisheries, aquaculture, transportation, tourism, renewable energy, and marine biotechnology

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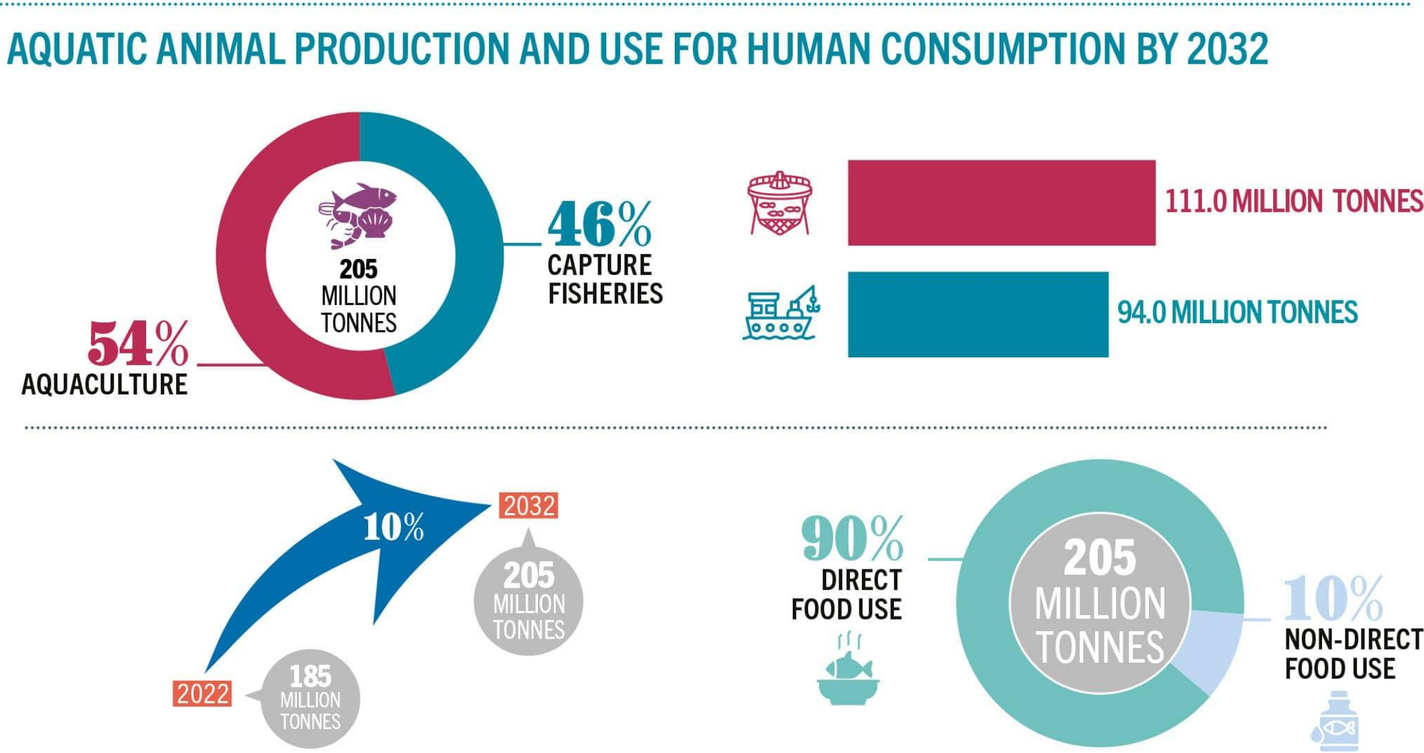
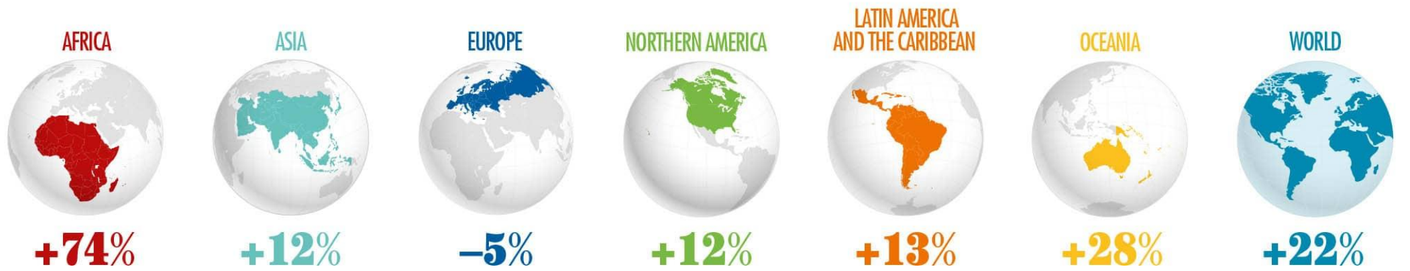
2. Global seafood production trends (1)

a. Shift from Wild-Capture Fisheries to Aquaculture (1)

- Aquaculture has surpassed wild-capture fisheries as the primary source of seafood, driven by stagnating wild fish stocks and rising demand.
- By 2030, aquaculture is projected to account for nearly 60% of global seafood production, with Asia (particularly China) leading this growth [1].





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2. Global seafood production trends (1)

a. Shift from Wild-Capture Fisheries to Aquaculture (2)

- However, reliance on fishmeal and fish oil for aquaculture feed raises sustainability concerns, as it perpetuates dependency on wild-caught species like small pelagics.
- Innovations in alternative feeds (e.g., plant-based or insect-based proteins) are critical to reducing this pressure.
- **Aquaculture in Indonesia** has great potential and is growing rapidly. Indonesia is the **second-largest aquaculture-producing country** in the world, with fish production reaching 13,000 tons in 2020, although still behind China. This sector includes not only fish farming but also shellfish, shrimp, and seaweed cultivation, which provide both economic and ecological benefits [2].

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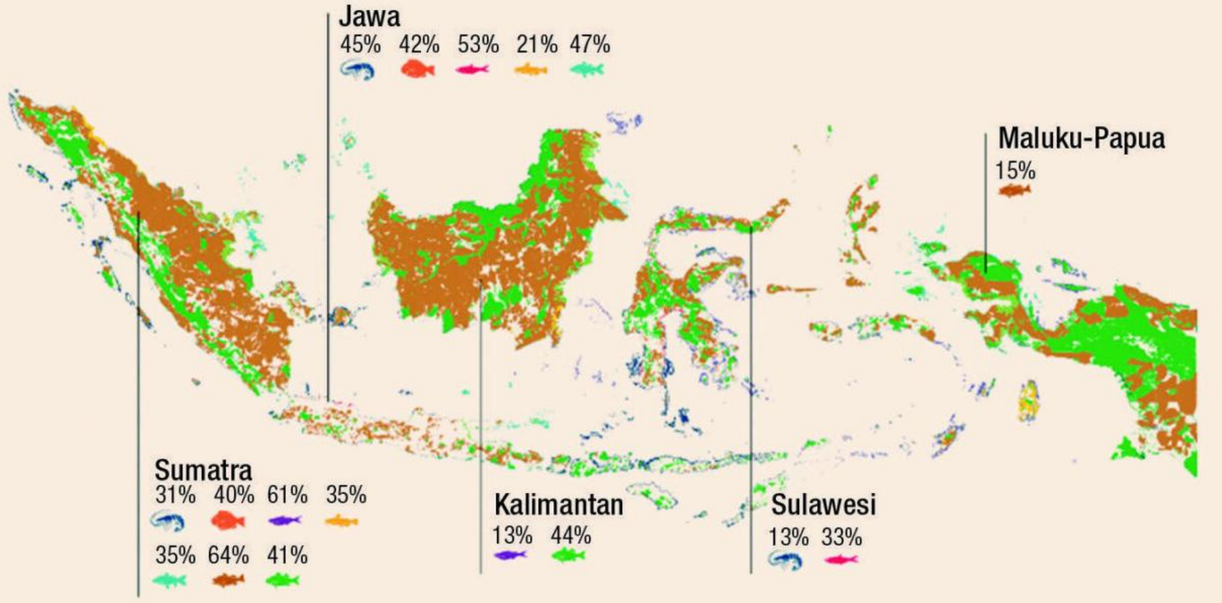
Potential for aquaculture interventions and innovations in several categories that will enable the aquaculture sector to grow without compromising the environment.



947,000 metric tons
Tilapia
Floating cage nets (23%) | Freshwater ponds (77%)

623,000 metric tons
Shrimp
Brackish-water ponds (100%)

575,000 metric tons
Milkfish
Brackish-water ponds (100%)

544,000 metric tons
Clarias catfish
Cages (11%) | Freshwater ponds (89%)

445,000 metric tons
Carp
Cages (10%) | Freshwater ponds (90%)

411,000 metric tons
Pangasius catfish
Cages (11%) | Freshwater ponds (89%)

19,000 metric tons
Grouper
Cages (100%)

7,000 metric tons
Sea bass/Sea perch/Barramundi
Cages (100%)

Forest cover: Land concessions, Forest
Seagrass beds: Fair, Unknown, Poor
Coral reef: Good, Fair, Poor, Unknown
Mangrove forests: Good, Fair, Poor, Unknown

aquaculturemag.com

2. Global seafood production trends (2)

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01

b. Post-Pandemic Market Resilience and Trade Shifts

The COVID-19 pandemic disrupted global seafood supply chains, with a projected 1% annual growth reduction until 2030. Developed nations are increasingly relying on intra-regional trade due to China's stringent policies and surging demand for seafood in high-income countries. Meanwhile, developing countries face export losses and food insecurity, with 17–57 million people at risk of seafood shortages by 2030. Recovery efforts emphasize multilateral cooperation and diversified supply chains [3].

02

c. Sustainability and Certification Trends

Sustainability certifications (e.g., MSC, ASC) and traceability are now central to consumer trust. The U.S. and EU lead in enforcing eco-labeling and combating illegal fishing. However, over 30% of global fish stocks remain overfished, necessitating stricter policies and adaptive management to align with SDG 14 (Life Below Water) [4].

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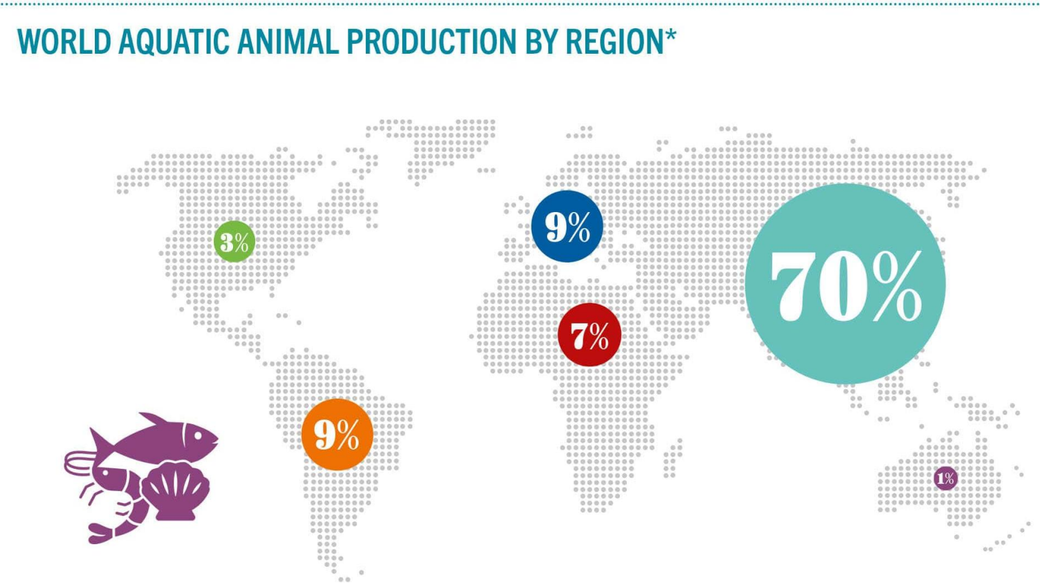
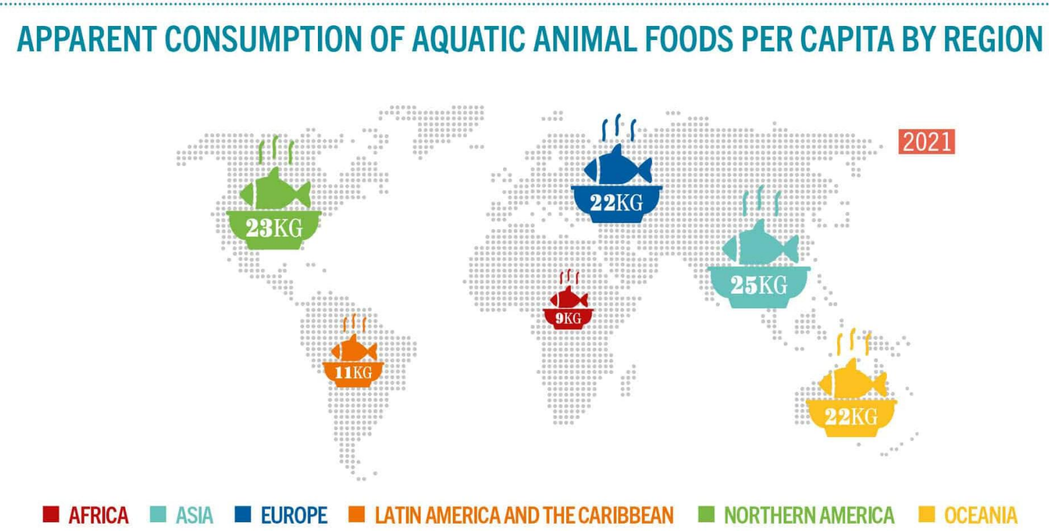
2. Global seafood production trends (3)

d. Regional Dynamics and Consumption Patterns

- Asia-Pacific: Dominates production (43.7% market share) and consumption, driven by urbanization and health trends [1].
- Europe: Focuses on premium and ethically sourced products, with a 34% consumer preference for culturally diverse seafood offerings [5].
- North America: Sees growth in pescetarianism and convenience products, with the U.S. market projected to reach $112 billion by 2032.





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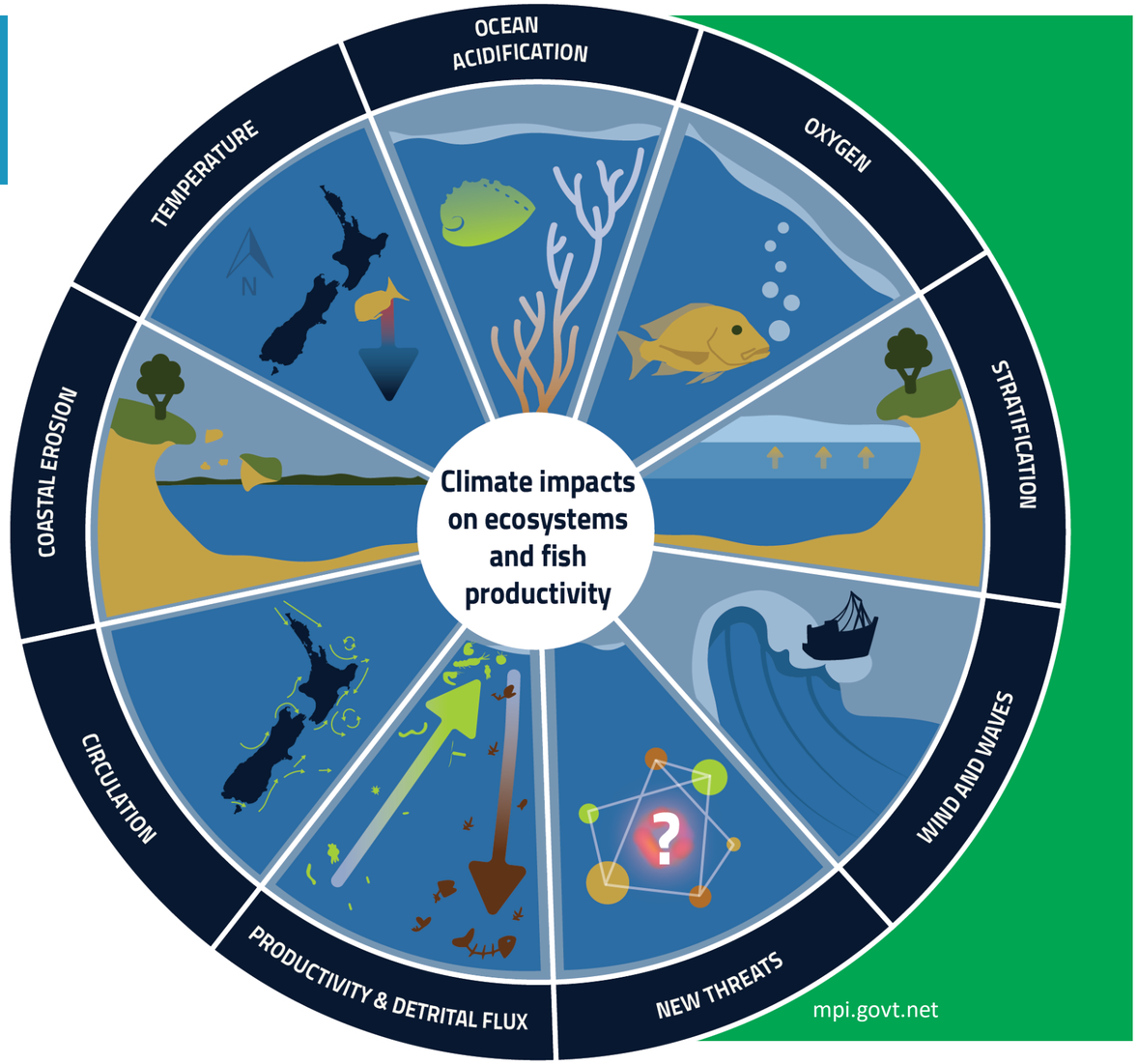
2. Global seafood production trends (4)

e. Climate Change and Resource Management

- Rising ocean temperatures and overfishing threaten wild stocks, particularly in tropical regions where small-scale fisheries support livelihoods.
- Adaptive strategies, such as ecosystem-based management and aquaculture diversification, are vital for resilience [1].
- The FAO advocates for integrating aquaculture into national food security agendas to mitigate climate impacts [6].



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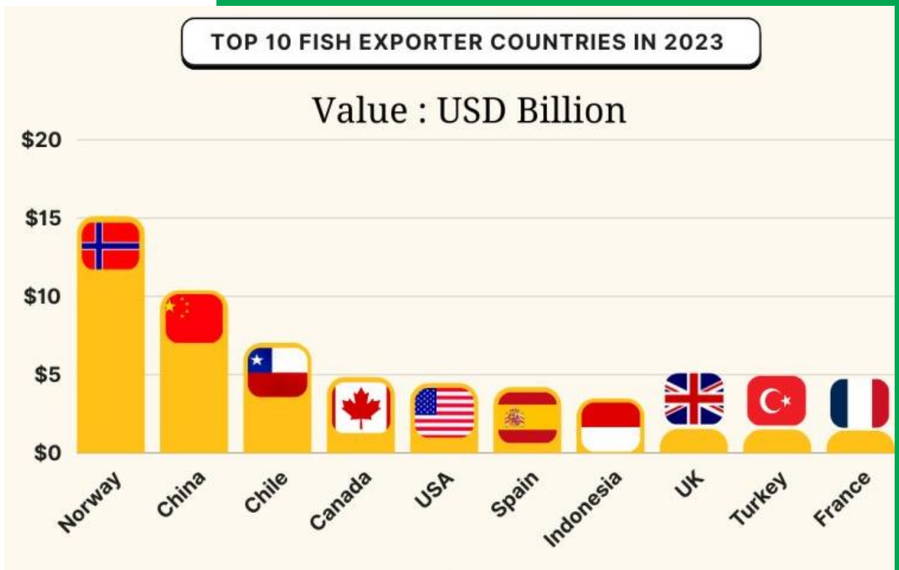
3 . Major Players in the Industry (1)

a. Global Market Leaders and Their Influence

- Dominance of "Keystone Actors": A small group of 13 multinational corporations control 11–16% of global seafood production, including Maruha Nichiro (Japan), Thai Union Frozen Products (Thailand), and Trident Seafoods (USA). These companies dominate wild-capture fisheries, aquaculture, and processing, leveraging vast networks of subsidiaries to influence global trade and policy [7].

- Revenue Powerhouses: Companies like Maruha Nichiro (Japan) and Mowi ASA (Norway) generate billions in revenue, with Trident Seafoods (USA) alone earning ~ 2.6 billion in 2022. The global seafood market , valued at 358.68 billion in 2023, is projected to reach $837 billion by 2032, driven by these key players.



Trident SEAFOODS

Dongwon

FCF Co., Ltd.
豐群水產股份有限公司

Thai Union

MARUHA NICHIRO
For the ocean, for life

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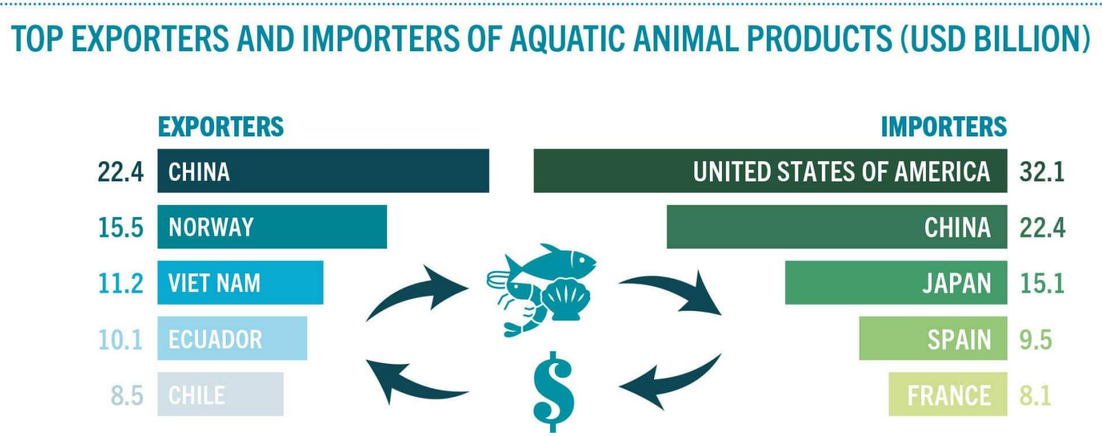
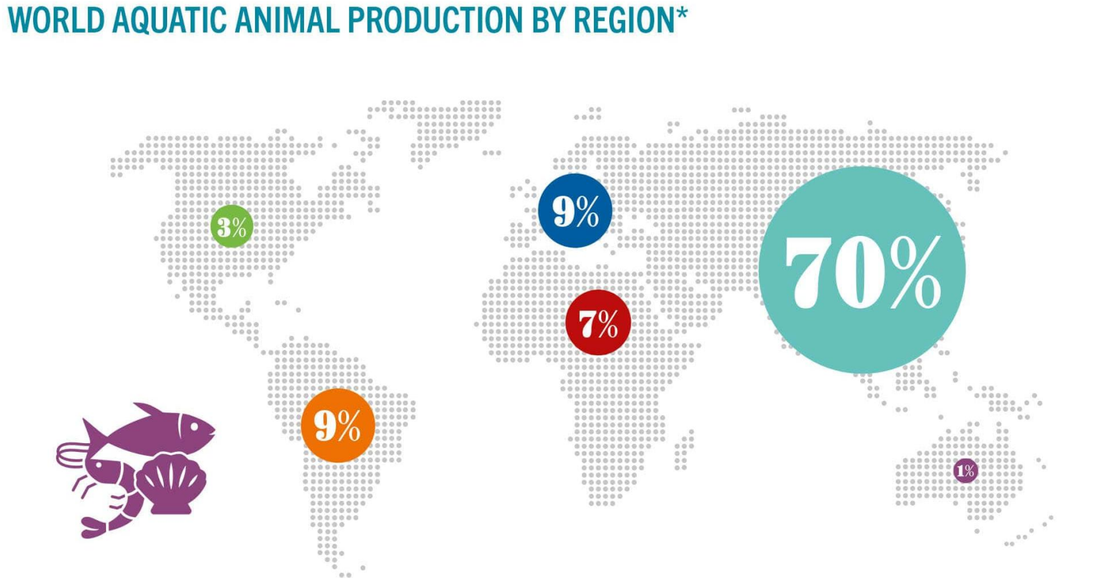
3 . Major Players in the Industry (2)

b. Regional Powerhouses

- Asia-Pacific Dominance: **Asia-Pacific accounts for 43.7% of the global market share, led by China, Japan, and Thailand**. Companies like Thai Union Group (Thailand) and Kyokuyo (Japan) focus on tuna, shrimp, and premium seafood exports, while China's aquaculture sector supplies over 60% of global farmed seafood

- North America and Europe: Trident Seafoods (USA) and Marine Harvest (Norway) emphasize sustainability, with Trident sourcing wild Alaskan salmon and Marine Harvest pioneering eco-certified salmon farming. Europe's SalMar (Norway) uses 100% sustainable feeds in aquaculture.





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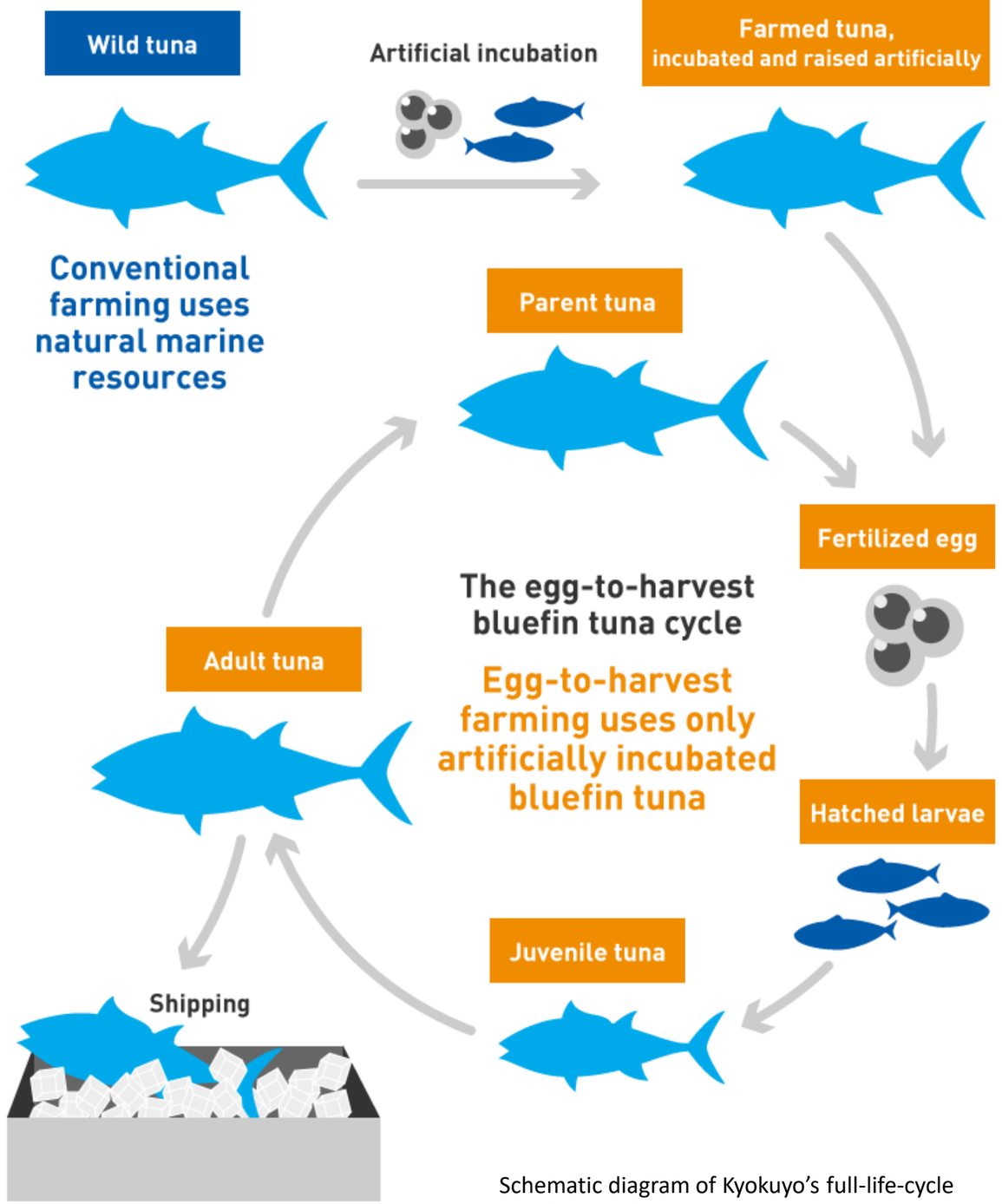
3 . Major Players in the Industry (3)

c. Sustainability and Certification Trends

- Eco-Labeling: Major players like Thai Union and Maruha Nichiro adopt **Marine Stewardship Council** (MSC) and **Aquaculture Stewardship Council** (ASC) certifications to meet consumer demand for transparency. For example, Kyokuyo's full-life-cycle bluefin tuna farming minimizes ecological impact.

- Innovations in Aquaculture: Companies like AquaChile (Chile) and Cooke Aquaculture (Canada) invest in sustainable salmon farming, reducing reliance on wild fish stocks for feed. Sysco Corporation (USA) has sourced 700+ million pounds of sustainable seafood since 2009.



Schematic diagram of Kyokuyo's full-life-cycle bluefin tuna farming by Maruha Nichiro, Japan
maruha-nichiro.com

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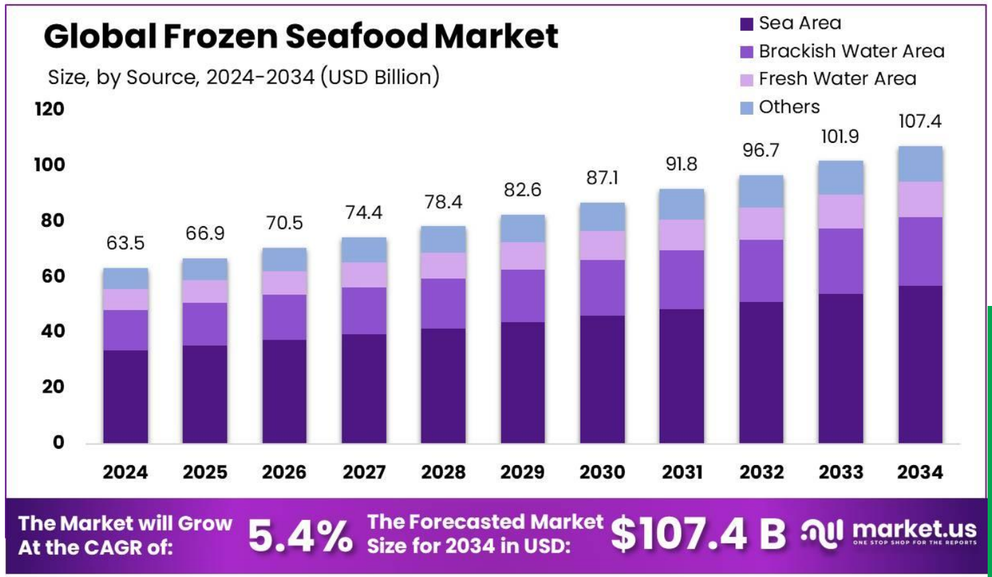
3 . Major Players in the Industry (4)



d. Market Adaptation and Challenges

- Shift to Processed and Frozen Seafood: High Liner Foods (Canada) and Dongwon Industries (South Korea) lead in frozen and ready-to-eat products, catering to convenience-driven consumers. Frozen seafood now accounts for nearly half of U.S. retail sales.

- Tariffs and Supply Chain Risks: Over 90% of U.S. seafood is imported, making companies vulnerable to trade policies. Potential tariffs on imports could reshape sourcing strategies, favoring domestic producers like Trident Seafoods.


Indian shrimp industry sails in troubled waters after Trump tariffs

By Sahiba Chawdhary, Rishika Sadam, Yury Garcia and Aditya Kalra

April 14, 2025 12:26 PM GMT+8 · Updated a day ago

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4. Seafood Supply Chain (1)

a. Structure of the Global Seafood Supply Chain

- Harvesting: Wild-capture fisheries vs. aquaculture, including small-scale vs. industrial operations.
- Processing: Key stages (cleaning, freezing, canning, value-added products) and regional hubs (e.g., Thailand for shrimp, Norway for salmon).
- Distribution: Cold-chain logistics, global trade routes, and reliance on air/sea freight.
Retail and Consumption: Supermarkets, restaurants, and direct-to-consumer models (e.g., subscription boxes).

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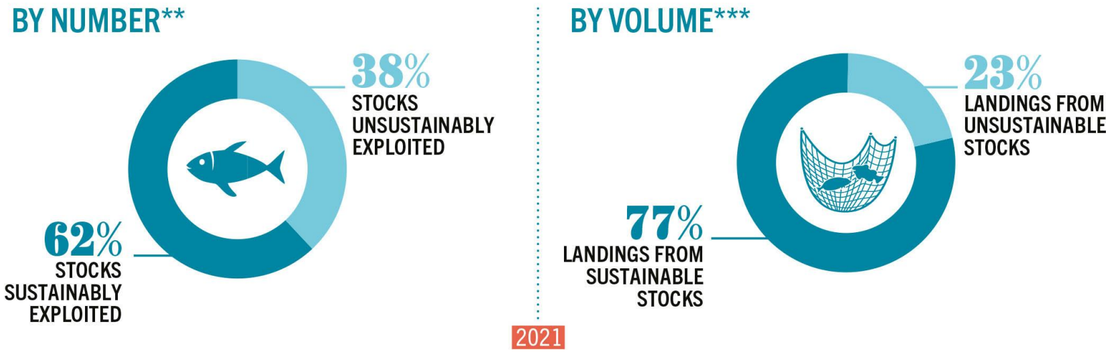
4. Seafood Supply Chain (2)

b. Sustainability Challenges

- Overfishing and Bycatch: 35% of global fish stocks are overexploited; 10% of catches discarded as bycatch.
- Carbon Footprint: Long-distance transport (e.g., Alaskan salmon sold in Europe) and energy-intensive aquaculture.
- Certifications: Role of MSC (wild-caught), ASC (aquaculture), and Fair Trade labels in ensuring ethical sourcing.

c. Traceability and Transparency

- Blockchain Technology: Companies like IBM Food Trust and Whole Foods track tuna from vessel to shelf.
- Consumer Demand: 70% of buyers want to know origin and sustainability; QR codes on packaging (e.g., Bumble Bee's "Trace My Catch").



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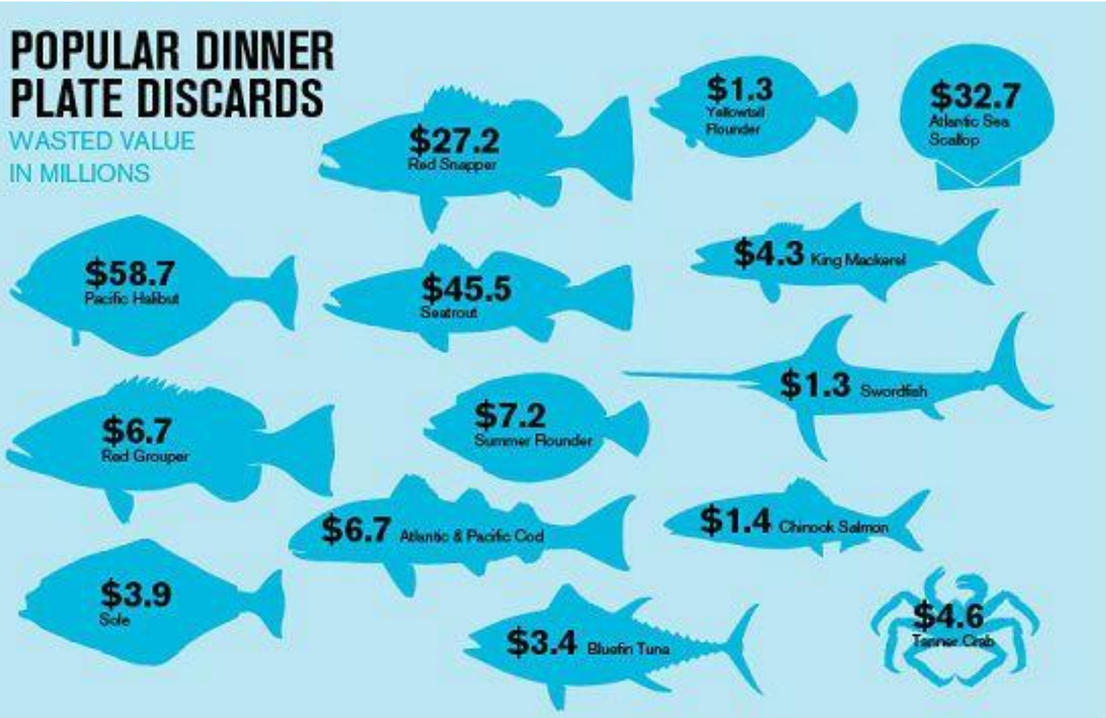

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4. Seafood Supply Chain (3)

a. Labors and Ethical Concerns

- Exploitation in Fisheries: Forced labor in Thai shrimp farms and IUU (illegal, unreported, unregulated) fishing.

  IUU fishing, short for illegal, unreported, and unregulated fishing, is a significant issue globally, impacting marine ecosystems, economies, and food security → it involves fishing activities that violate national and international laws, are not reported to authorities, or are not regulated by any governing body.

- Fair Wages: Initiatives like the Global Seafood Alliance's Responsible Fishing Vessel Standard

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dkp.jatimprov.go.id

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Further Reading

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