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Exploration of the Economic Benefits of Adopting Sustainable Fisheries and Aquaculture Practices

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Project: 101129136 — SustainaBlue — ERASMUS-EDU-2023-CBHE

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Malaysia Aquaculture Development Association

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Outline

01 Market Premiums & Enhanced Revenue

02 Operational Efficiency & Cost Reduction

03 Employment & Community Development

04 Circular Economy & Resource Efficiency

05 Policy & Investment Enablers

Sustainable fisheries and aquaculture practices transform ecological stewardship into **economic prosperity** by enhancing market access, reducing operational costs, creating jobs, and fostering resilience

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1. Market Premiums & Enhanced Revenue

- **Certification-Driven Premiums**: Eco-labels (e.g., MSC, ASC) enable 5–15% price premiums in global markets. For example, New Zealand's MSC-certified hoki fishery captured lucrative EU and North American markets, boosting export revenue [1].
- **Consumer Demand**: 57% of consumers prioritize sustainably sourced seafood, with millennials driving demand for traceable products. Blockchain systems (e.g., IBM Food Trust) verify sustainability claims, enhancing brand loyalty and market share [2].
- **Export Growth**: Vietnam increased seafood exports to $8.4 billion (2020) by diversifying into processed shrimp and pangasius, leveraging trade agreements like the EVFTA.

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Seafood market strategies ranked by market influence

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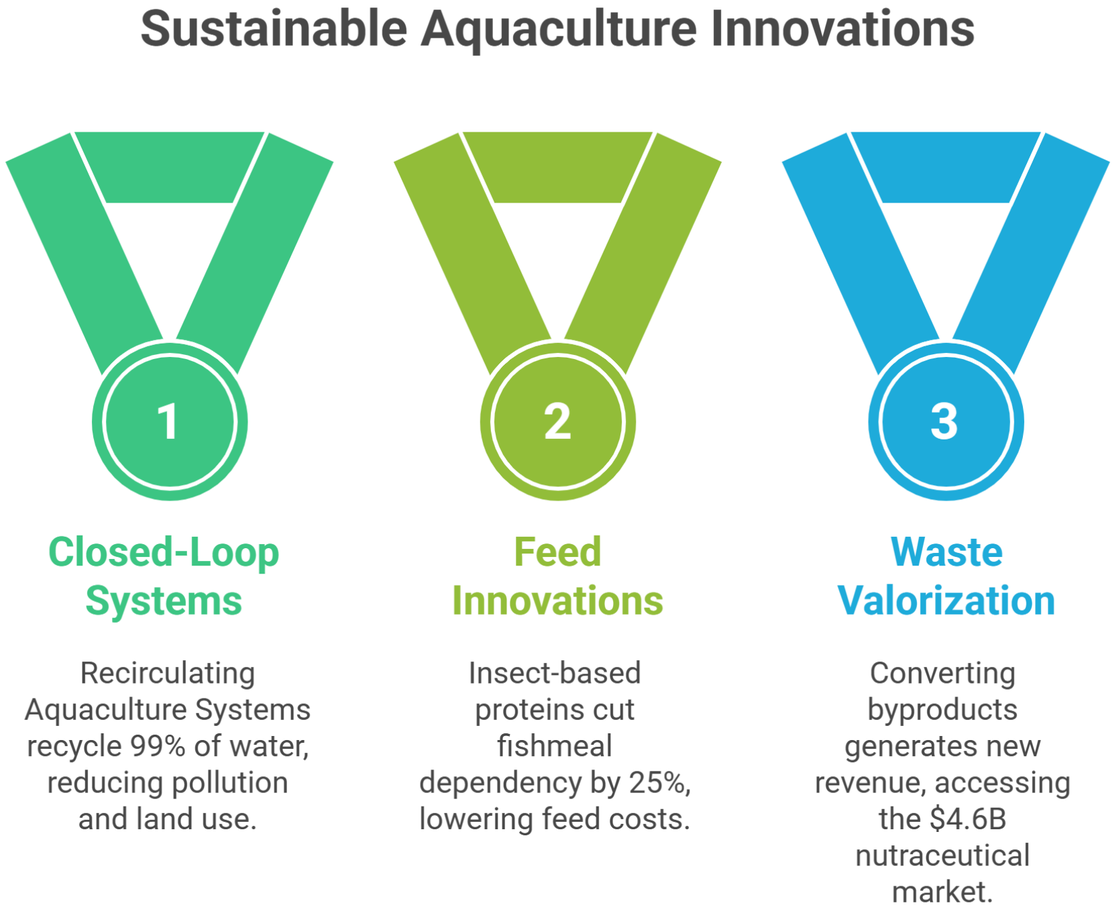
2. Operational Efficiency & Cost Reduction

- **Closed-Loop Systems**: Recirculating Aquaculture Systems (RAS) recycle 99% of water, reducing pollution and land use. Projects like Atlantic Sapphire (USA) produce salmon with minimal environmental impact while lowering operational costs [2].
- **Feed Innovations**: Insect-based proteins (e.g., black soldier fly larvae) cut fishmeal dependency by 25%, lowering feed costs. Ecuador's shrimp farms achieved higher yields post-transition [2].
- **Waste Valorization**: Converting byproducts (e.g., fish skins into collagen or leather) generates new revenue. TômTex's shrimp-shell leather accesses the $4.6B nutraceutical market [1].



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3 . Employment & Community Development

- **Job Creation**: Aquaculture supports 62 million jobs globally, with sustainable practices projected to add 20% more by 2030. In the U.S., the sector generates $1.5 billion annually and supports 22,000+ jobs [3].
- **Gender Equity**: Women-led seaweed cooperatives in Indonesia increased incomes by 40% while restoring habitats [2].
- **Smallholder Inclusion**: Group certifications (e.g., Fair Trade USA clusters in Aceh) reduce costs for artisanal fishers, improving market access [2].

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Aquaculture's Socio-Economic Impact

Job Creation

Supports 62 million jobs globally, with a 20% increase projected by 2030

Gender Equity

Women-led cooperatives in Indonesia increased incomes by 40%

Smallholder Inclusion

Group certifications reduce costs and improve market access for artisanal fishers

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theconversation.com

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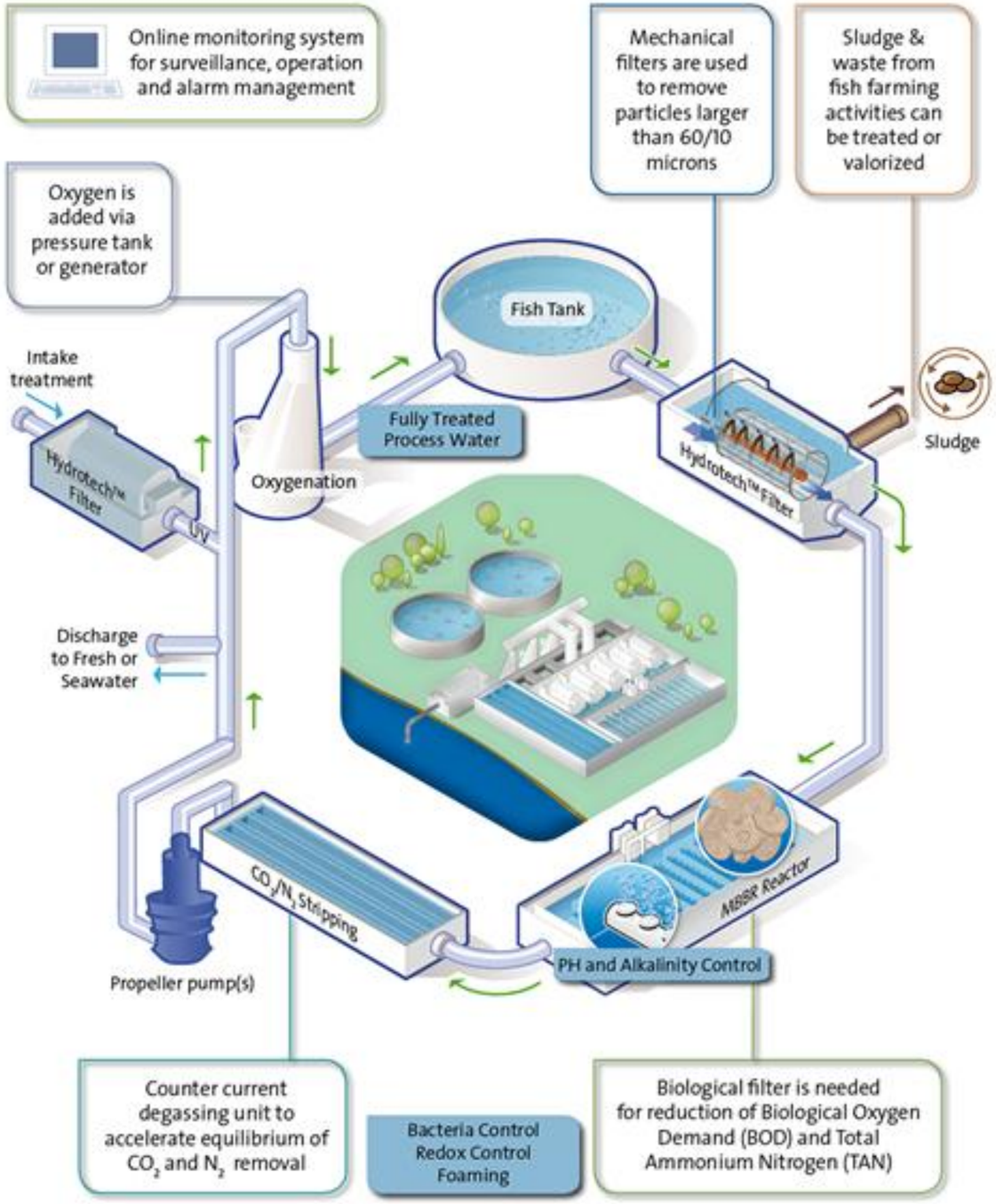
4. Circular Economy & Resource Efficiency

- **Integrated Models**: Integrated Multi-Trophic Aquaculture (IMTA) combines fish, seaweed, and shellfish, recycling nutrients and boosting profits by 15–20% [4].
- **Blue Carbon Initiatives**: Vietnam's mangrove-shrimp farms sequester carbon, generate credits, and increase yields by 30% [1].
- **Cold Chain Innovations**: Solar-powered refrigeration cuts spoilage by 20% in developing regions, reducing losses.



RAS system (reddit.com)

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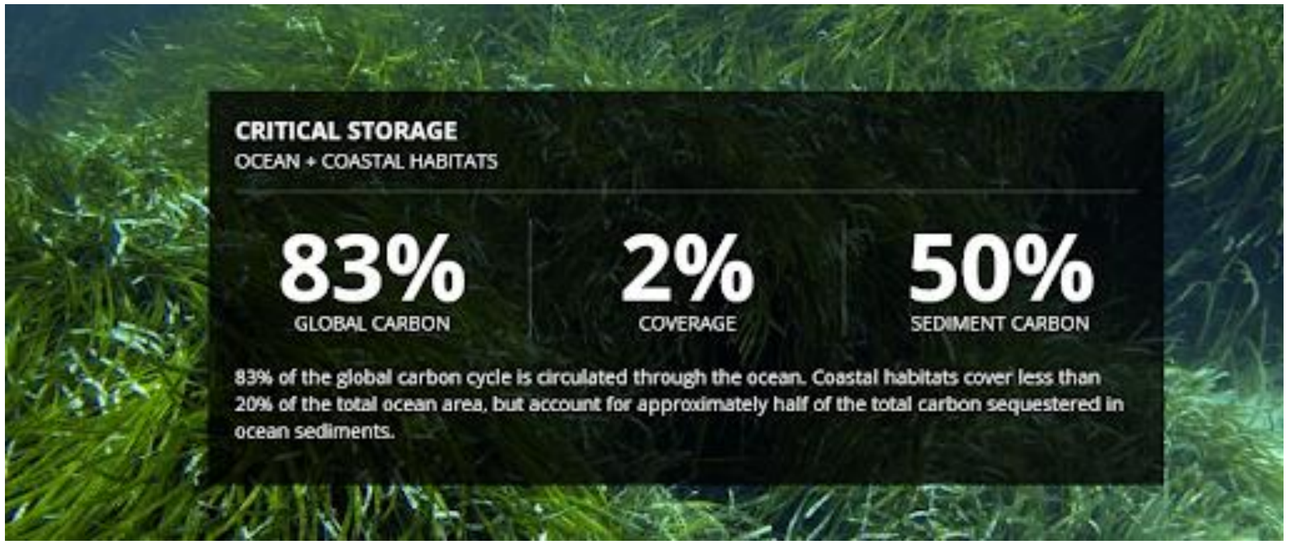

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Blue Carbon Initiative Cycle

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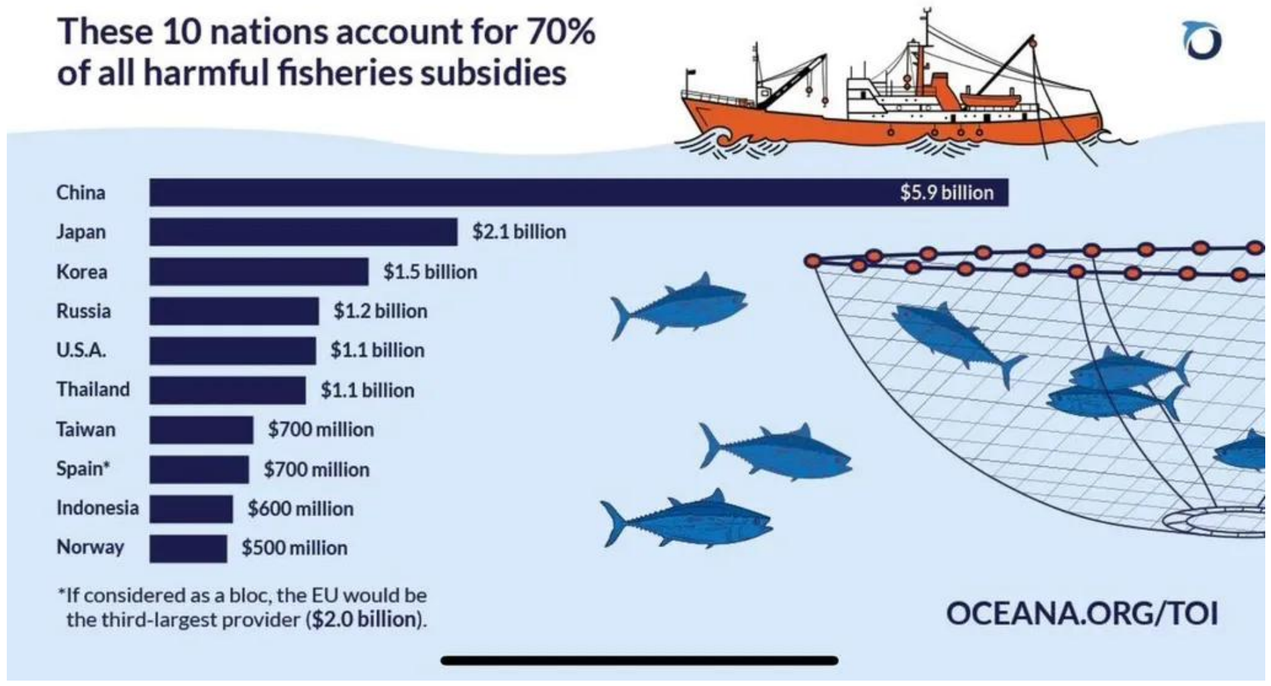
5. Policy & Investment Enablers

- **Subsidy Reform**: Redirecting $22B/year in harmful fisheries subsidies funds habitat restoration and RAS adoption. Indonesia supports community-led projects through such reforms [1].
- **Green Financing**: Sustainable projects attract ESG investments. The World Bank's PROBLUE fund supports aquaculture resilience in developing nations [2].
- **Trade Harmonization**: The Global System of Trade Preferences (GSTP) reduces tariffs among 42 nations, though non-tariff barriers (e.g., sanitary standards) need alignment [1].

Sustainable Aquaculture Initiatives

Characteristic	Subsidy Reform	Green Financing	Trade Harmonization
Funding	$22B/year redirected	World Bank PROBLUE fund	Reduced tariffs
Focus	Habitat restoration, RAS adoption	Aquaculture resilience	Tariff reduction
Example	Indonesia community-led projects	ESG investments	Global System of Trade Preferences



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Challenges & Mitigation Strategies

High Initial Costs

RAS setup ($10M–$15M) excludes smallholders. Solution: Blended finance models (e.g., public-private partnerships)

Certification Barriers

Small fishers struggle with compliance costs. Solution: Group certifications and government grants

Climate Vulnerability

Warming oceans disrupt species (e.g., Alaska snow crab). Solution: Diversify species (e.g., Dungeness crab) and dynamic quotas

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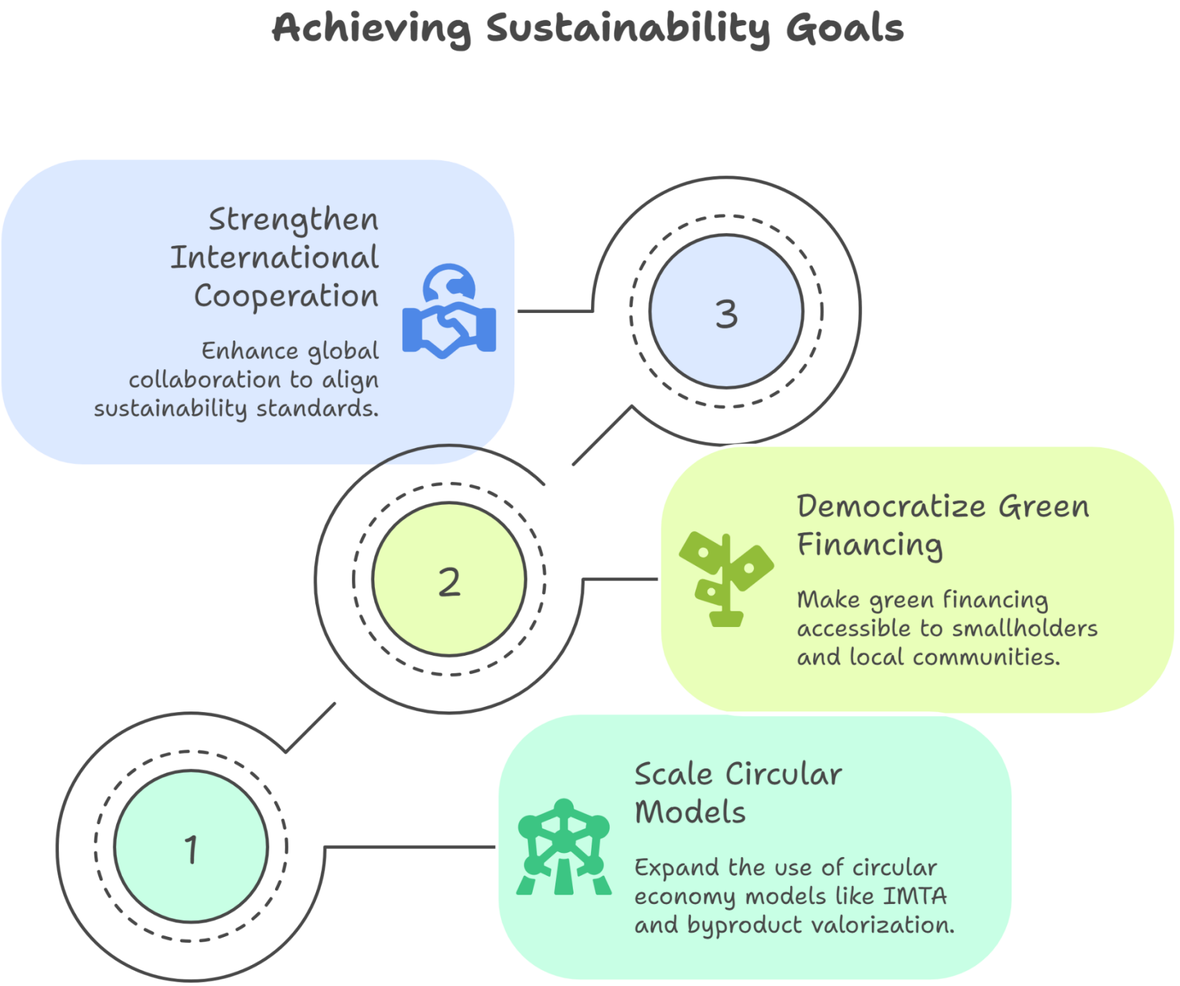
Priorities for Action



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CONCLUSION

Sustainable fisheries and aquaculture reconcile economic growth with planetary boundaries by:

1. Leveraging technology (RAS, blockchain) for efficiency and transparency
2. Empowering communities through inclusive policies and equitable market access
3. Aligning with global frameworks like FAO's Blue Transformation to unlock a projected $837B market by 2032

"Sustainable aquaculture turns stewardship into profit—transforming waste into wealth, and conservation into market advantage."

Troell et al. (2023)

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Further Reading

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THANK YOU

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