
HOW CAN WE SECURE

SUSTAINABLE SMALL-SCALE FISHERIES

BEYOND THE CATCH?

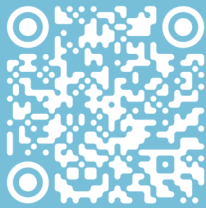


Invest in
tech-enabled
route-to-market
models.

A THOUGHT PIECE FOR THE BLUE ECONOMY FINANCE FORUM
AND UNITED NATIONS OCEAN CONFERENCE

JUNE 2025

This piece was written by members of a global collective of organisations working at the interface of small-scale fisheries, tech and markets to unlock equitable, viable and resilient seafood systems. They meet every month to share experiential learnings, fast-track progress and collaborate.



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SUMMARY

Small-scale fisheries are vital to global food and nutritional security, livelihoods and marine resource stewardship, particularly in developing nations, yet they remain structurally marginalised in markets, governance and investment frameworks. Despite numerous initiatives, achieving systemic change and impact at scale has proven elusive. These fisheries face compounded challenges, including socioeconomic inequity, limited infrastructure, restricted access to technology and market exclusion.

Emerging route-to-market organisations (RTMs) are demonstrating catalytic potential in addressing these gaps. Uniquely positioned at the intersection of ecological sustainability and economic empowerment, these tech-enabled social enterprises are building integrated models that deliver measurable ecological, economic and social impact. By combining traceability systems, cold chain logistics, financial services and training, RTMs enable fishers to retain value, secure better prices and access markets while nurturing sustainable fishing practices and community resilience.

That said, the expectation that these organisations can scale rapidly with modest grants or transition prematurely to market-rate equity investment risks undermining their foundational impact. RTMs typically grow incrementally, requiring patient, blended capital aligned with ecological and

social objectives. Early-stage grants and concessional finance are essential to de-risk operations, support adaptive infrastructure and enable inclusive innovation.

Transforming small-scale fisheries at scale requires fundamentally rethinking how impact is funded.

Extended catalytic grants, strong foundational partnerships and impact-first investment with realistic return horizons are crucial. This strategic, layered approach offers a viable blueprint for building equitable, sustainable seafood systems and delivering long-term change for the largest group of ocean dependents on our planet.

A VOICE IN THE BLUE ECONOMY



As the vision of the Blue Economy grows, our oceans are increasingly recognised as a vital frontier for sustainable development. This presents a unique opportunity to harmonise economic growth with ocean health and the well-being of coastal communities, to co-create a future where both people and the planet thrive.

Actively engaging the 500 million people who rely on healthy seas and fisheries for their livelihoods — and ensuring their inclusion and centrality in this development narrative — is critical to global food security and ocean stewardship.

While urgent threats such as overfishing, biodiversity loss, and interconnected social and ecological inequities persist, these challenges also offer a chance for systemic change.

With prioritisation and adequate investment, coastal communities can unlock the immense potential of our oceans as sources of biodiversity, cultural heritage, economic opportunity, and sustainable solutions to global challenges, including food insecurity and climate change.

SMALL-SCALE FISHERIES - VITAL YET VULNERABLE

Small-scale fishers produce 40% of the world's fish catch, yet many face extreme poverty and vulnerability.

Over 5.8 million fishers survive on less than US\$1 per day, and 97% of the 500 million people reliant on fisheries for their livelihoods reside in developing countries. Despite their indispensable role in sustaining livelihoods and providing critical nutrients to local communities, small-scale fishers face systemic exclusion and marginalisation in supply chains, markets and fisheries governance, depriving them of fair economic opportunities and sustainable development.

Seafood from small-scale fisheries is among the most widely consumed and traded global commodities, yet fisher communities remain vastly underpaid, overlooked and underrepresented. Issues of equity and access permeate the entire supply chain. Fishers frequently face barriers such as limited financial literacy, inadequate infrastructure, insufficient start-up capital and restricted access to competitive markets. Without technologies for traceability and collective structures for aggregation and market positioning, fishers struggle to negotiate fair prices or meet the growing demand for traceable, sustainable seafood.

This leaves them dependent on downstream actors in the supply chain.

Due to data scarcity and historical informality, small-scale fisheries are often labelled as Illegal, Unreported and Unregulated (IUU) — a misnomer where laws or institutional frameworks for regulation and reporting are absent. Despite representing a multi-billion-dollar sector, most profits and added value bypass small-scale fishing communities, instead accruing to downstream actors during processing, distribution and sales. The World Bank *Hidden Harvest* report estimates marine capture fisheries contribute US\$380 billion annually to the global economy — 4.5 times their first sale value.

The economic and power imbalance between fishers and downstream actors is compounded by several factors, including fishers' financial and skills dependency on middle-persons, exploitative pricing practices, fluctuating post-harvest processing quality, and repayment schemes tied to credit agreements. Infrastructural challenges — such as inadequate cold

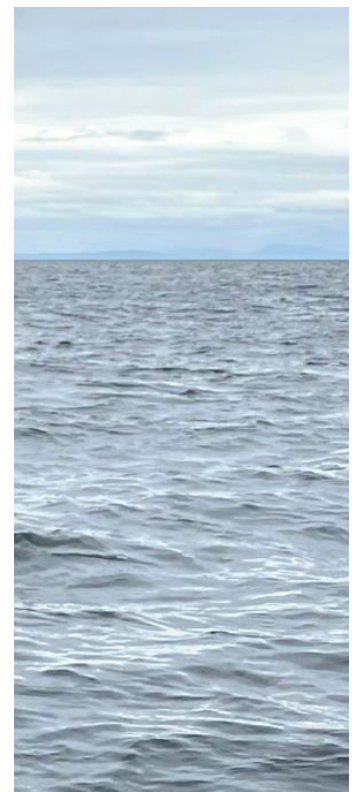
storage and long distances to markets — force fishers to sell quickly, often at unfavourable prices. As a consequence, small-scale fishing communities often become trapped in cycles of debt and dependency, perpetuating unsustainable practices and stifling both domestic and global market growth.

The World Bank's *Sunken Billions Revisited* report estimates that such dysfunctions result in \$83 billion in lost economic benefits annually. A significant portion of this loss stems from overfishing and underperforming fish stocks, particularly in small-scale fisheries, where recovery and improved governance could unlock enormous untapped value.

Neglecting to invest in the long-term recovery of these fisheries not only undermines ecological productivity but also forfeits the opportunity to develop resilient and thriving coastal economies.



IMAGE © FUTURE OF FISH



Across the fisheries landscape, route-to-market organisations (RTMs) — often called social intermediaries — are emerging as essential drivers of equitable and sustainable growth in small-scale fisheries, particularly in contexts where traditional sustainability models have fallen short in delivering lasting, systemic change.

EMERGENCE OF ROUTE-TO-MARKET MODELS

These mission-driven entities,¹ often positioned at the ‘first mile’ of the seafood value chain, bridge the gap between fishers and fair, sustainable markets. Acting as the ‘first buyer’ or other key market actor, they aggregate catches and strive to facilitate fair pricing, transparency, improved handling and increased *economic value retention*² for fishing communities. These embedded intermediaries — including cooperatives, producer organisations, non-profits, social enterprises and startups — develop partnerships, infrastructure and value chains to connect fishers to ethical, local or premium markets. By integrating logistics, traceability and decentralised cold chain services, they improve post-harvest practices, reduce losses, and create the enabling conditions for fishing communities to meet evolving market standards and demands.

Beyond direct market connections, these organisations also play a critical role in

community development, directly or with core partners. Their efforts extend to nurturing co-management of marine resources, cooperative governance, business development and quality assurance, ensuring that market access initiatives are impact-aligned and firmly rooted in sustainability, equity and long-term resilience.

1 Examples: ABALOBI, SmartFish, BlueYou, Micaleta, Meliomar, Kumbatia, Skipper Otto, Poiscaile, Fish-Tales, Ecogourmet, and enablers such as PescaData, Trazapp and Shellcatch

2 A key performance indicator to measure how effectively small-scale fishing communities optimise returns from their marine resources. It provides a numerical snapshot of the value retained by fishers and their communities after the catch. By identifying where value is lost within the supply chain, it equips fishers, communities and stakeholders with vital insights, highlighting opportunities to retain income and improve financial outcomes.

INNOVATING WHERE TRADITIONAL MODELS HAVE FAILED

Many mainstream approaches, such as top-down monitoring, control and surveillance (MCS), large no-take zones, and certification schemes, often fail to uplift small-scale fishing communities, especially when implemented in isolation. Furthermore, large-scale development initiatives that target small-scale fisheries have often unintentionally resulted in decreased sustainability. In contrast, RTMs are uniquely positioned at the nexus between ecological sustainability and economic development.

Unlike traditional intermediaries driven by profit maximisation, RTMs operate within a triple-impact model that seeks to balance ecological sustainability, economic benefits for fishers, and social equity. Tailored to the unique context of each fishery and community, this holistic approach ensures that the benefits of market access initiatives extend beyond transactions, encouraging responsible fisheries management practices and creating stability within fishing communities and ecosystems.



Central to this model is the integration of enabling and cross-cutting technologies. Over the past decade, RTMs have adopted or developed co-designed digital platforms, including mobile and web-based traceability and sales applications. These platforms, combined with skills-building, local data ownership and market access initiatives, offer great promise for supporting small-scale fishers in building and maintaining equitable fisheries. By integrating e-commerce with logistics, cold chains, digital payments, marketing, data services, training, community development and financing, RTMs are creating inclusive tools that are comprehensive, relevant and accessible for widespread adoption.

‘Tech-enabled’ RTMs operate where small-scale fisheries are ‘in the red’ — those affected by overfishing, food insecurity and economic marginalisation due to systemic market failures. Often sidelined in government policies and decision-making, these fisheries require innovative interventions.

By leveraging technology and their position in the value chain, RTMs seek to

disrupt these imbalances and the drivers of overfishing, improve economic returns for fishers via fair market access, and break the cycles of debt and dependency on resources and/or middle-persons.

These organisations can deliver tangible benefits by incentivising data collection and sustainable management practices, ensuring that market development aligns with resource sustainability, gender equity and economic advancement. By integrating technology, monitoring catch data and promoting co-management, they enable fishers to participate in decision-making processes that impact their livelihoods in a more active role. Fishers can use their data to demonstrate stable supply and other key indicators to potential buyers, unlocking access to alternative or more lucrative markets. This ensures that market access is not merely transactional, but about transforming small-scale fisheries into fair, transparent and economically viable food systems with balanced triple-bottom-line priorities.

Global frameworks such as the United Nations Food and Agricultural Organization's *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries* and Sustainable Development Goal (SDG) 14.b call for strengthened access to markets and services for small-scale fishers — RTMs offer a practical model to actualise these commitments, bridging the gap between high-level goals and tangible outcomes in coastal communities.



TACKLING INDUSTRY PRESSURES AND HARSH MARKET REALITIES

RTMs operate in a complex space between the ecological, economic and social realities of coastal communities and the volatile global seafood market. Increasing seafood industry consolidation further complicates the process of connecting small-scale producers to larger markets. Traditional seafood suppliers often focus on high-demand, easily sourced species



such as imported, farmed or industrially caught seafood. They run lean inventory models and engage with small-scale fishers only opportunistically, offering low prices when markets are flooded. This entrenched model leaves small-scale fishers significantly disadvantaged. Meanwhile, the growing demand for full-chain traceability and certifications, though crucial for documenting and verifying sustainability, places further strain on fishers, who often lack the financial and administrative capacity to meet these requirements.

To remain competitive, RTMs must address irregular supply caused by seasonality, weather and logistical challenges. Unlike large industrial fleets, small-scale fishers operate within the natural cycles and shifting ecosystems of confined areas, making supply unpredictable. Building stable demand at scale remains a challenge.

RTMs must also manage buyer price pressures and create demand for lesser-known sustainable species — a tall order in an industry with tight margins, where retail and commodity prices often fail to reflect the actual cost of responsible, small-scale production.

Therefore, achieving meaningful impact at scale demands layered strategies, such as integrating higher-volume, more commercial commodities like farmed prawns or salmon, securing government subsidies and attracting catalytic grant funding directly or through aligned non-profit partners. Such layers are critical for de-risking future investment and enabling iterative development towards a viable model. This is particularly true in contexts where optimising operations, digital systems, and data use is necessary, while simultaneously ensuring value retention in fishing communities and reducing costs for harvesters.

Investment in decentralised cold chain infrastructure is especially vital to scaling impact. By enabling consistent product quality, reducing spoilage and creating post-harvest employment opportunities, this infrastructure becomes foundational to sustainable and inclusive seafood value chains. Without this blended approach, RTMs risk being undercut by conventional players and miss the opportunity to transform supply chains into equitable, inclusive and ecologically responsible systems.

RTMs counter these challenges by implementing strategies that go beyond pricing. They help fishers reduce input costs, such as ice, fuel and bait, and provide bundled services like financial products, insurance and training. They reduce risk and promote convenience and loyalty by guaranteeing full catch-offloading and purchasing. They also innovate with frozen stock models to balance seasonal variability, ensuring supply consistency and quality. These disruptions are difficult for traditional buyers to replicate, giving RTMs a distinct advantage. Nevertheless, achieving such results requires significant time, effort and working capital.

Achieving pivotal impact also requires rethinking how value is distributed across the broader seafood supply chain. While many efforts focus on MCS at the supply level or certification at the demand side, RTMs highlight the need for an integrated approach. Fishers, aggregators, processors, distributors, exporters and retailers all operate under distinct models and face unique risks. Coordinating transitions across these entities through targeted interventions and tailored financing is critical to building an inclusive, sustainable seafood system.

MINIMISING THE RISK OF UNINTENDED CONSEQUENCES

Because small-scale fisheries are central to rural communities, interventions in this sector inherently carry considerable social and environmental risks.

Economic development projects can have unintended yet well-documented socioeconomic consequences on political structure and stability, social cohesion and dynamics, cultural practices, benefit-sharing and inclusion, particularly for traditionally marginalised groups in coastal communities.

Fisheries development projects, in particular, can result in significant unintended environmental consequences, especially

when interventions aimed at improving value, efficiency or market access fail to anticipate increased fishing effort and its impacts. Forward-thinking RTMs can anticipate and address these risks by co-designing interventions through long-term representative partnerships, safeguarding against effort or impact increases linked to higher value, and systematically monitoring the status and trajectories of target fish stocks and their ecosystems.



So do RTMs have it all figured out? The answer is nuanced ...

THE COMPLEXITIES OF RTMs

Successful RTMs are making tangible strides in addressing real challenges in small-scale fisheries and creating measurable triple-bottom-line impact. They are also working to establish self-sustaining business models — a task that is neither easy nor quick, especially when scaling operations well beyond the initial project phase.

Often originating as grant-funded projects led by non-profit organisations, successful RTMs have evolved over time into revenue-generating enterprises through market transactions and value-added services such as data, technology, training and benchmarking. By optimising unit economics and improving cold chain and logistics operations, they maximise value retention within fishing communities, ensuring fair compensation and sustainable livelihoods. Their business models intersect with key profitability drivers, including traceability, data software, seafood sales, logistics and financial services.

However, the journey to break-even and profitability is lengthy and fraught with challenges, often requiring targeted investment and capital that can be difficult

to secure. Given the current ecological, economic and social realities facing coastal communities — alongside the volatility and consolidation within global seafood markets — RTMs must find ways to subsidise their growth and operations, both in the early stages and, in many cases, over the longer term. Most RTMs navigate this landscape while being bootstrapped regularly, as this type of funding is hard to secure. As a consequence, they barely sustain operations and achieve incremental but steady growth. Others who take on more aggressive impact investment are forced to dilute the breadth and depth of their impact, prioritising higher profit margins and rapid returns for investors.

RTMs are poised to revolutionise small-scale fisheries. Yet, the question remains: How can we go beyond incremental progress to truly activate and scale these self-financing models of improvement?



“RTMs do
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RETHINKING THE CAPITAL STACK

RTMs are emerging as critical intermediaries in transforming small-scale fisheries, offering a model that integrates market access, traceability, community co-management and financial inclusion. That said, scaling these models requires a restructured capital stack — combining catalytic grants, concessional loans and impact-first investments over at least a decade— to deliver the long-term, triple-bottom-line transformation they are uniquely positioned to enable.

RTMs do not conform to conventional investment paradigms. These organisations operate at the intersection of conservation and livelihoods, and their success hinges on deep community engagement, patient systems-building, and a gradual transition toward sustainability. Yet, many external funders and investors continue to expect rapid scale and market-rate returns, applying frameworks more suitable to commercial tech startups. This disconnect risks undermining the very impact RTMs are designed to deliver. For instance, to

deliver market-rate returns, RTMs and their fisher partners can be forced to compromise on environmental sustainability, fundamentally undermining their triple-impact purpose.

Instead, RTMs require a sequenced and blended capital strategy, tailored to their lifecycle and the complexities of the sector. In their early stages (3–8 years), catalytic grants are essential — not only to de-risk the model and attract further support, but to fund foundational investments in infrastructure, technology and community trust-building. These grants enable co-design with fishers, assessment and monitoring of fish stocks and ecosystem impacts, the development of digital and physical systems, and critical work on data collection and analysis, which in turn can lay the groundwork for later access to credit and formal financial services.

Crucially, RTMs need time. A long runway allows them to refine their logistics, quality control, compliance and buyer relationships, while continually optimising their operations. Over time, this enables RTMs to reduce costs, improve margins and increase value retention in coastal communities without compromising competitiveness. With scale and systems in place, concessional loans (or recoverable grants) and impact-first investments can support infrastructure upgrades, working capital for cold chain expansion or stock financing, further driving operational resilience and sustainability.

These capital needs are deeply intertwined with the mission of RTMs. These organisations are not mere distributors; they are ecosystem builders. A significant part of their work lies in nurturing fisher agency through tools that allow fishers to track and analyse their data, negotiate fairer prices, participate in cooperative structures and build long-term resilience. Establishing and maintaining this trust is not a transactional act; it is a process of shared ownership, transparency and responsiveness.

While their size and embeddedness render RTMs ideal conduits for value chain investment, few impact investors in the ocean space are positioned to engage with models that offer below-market financial returns but deliver high social and ecological return on investment (ROI). Yet these are precisely the models that can transform seafood supply chains. With evolving blended capital and the right partnerships, RTMs can scale their work, supporting sustainable livelihoods, more equitable markets, and the enduring rebuilding of fisheries.

In sum, RTMs present an opportunity to align capital with systemic impact. But realising that potential requires a shift — not only in how investment is structured, but in how success is measured. Transforming fisheries will not happen in a single investment cycle. It will happen through long-term, values-aligned partnerships built on trust, traction and time.



A CALL FOR ALIGNED INVESTMENT

Are we setting ourselves up to stumble and overlook the ultimate goal: building resilience among coastal communities on the frontlines of climate change?

Catalytic capital is positioned as the spark to attract private capital to ocean solutions, many in search of market returns and exits. This may fit a handful of groundbreaking solutions in new markets — though we are yet to witness organisations consistently deliver ecological, economic and social returns at scale, particularly when embedded within vulnerable coastal communities.

RTMs are not high-risk ‘unicorn’ ventures seeking rapid expansion; they are more akin to resilient ‘oxen’, steadily building platforms that drive systemic change in small-scale fisheries and coastal economies. This long-term vision positions them as bankable

entities delivering sustainable returns for people and the planet while maintaining a commitment to equitable value distribution and transformative impact.

Restoring our oceans demands substantial, long-term capital and efficient organisations equipped to deliver tangible impact at scale.

The expectation of market-rate returns (e.g. IRR 15–25%) in the short- to medium-term

alongside this impact could be considered idealistic, distracting from the more profound, long-term work needed.

To succeed, RTMs must attract capital with longer time horizons, lower return expectations and blended ROI models. They must systematically build an ecosystem of trust, transparency and shared value, brick by brick. Each investment in social infrastructure, enabling cooperatives, digitising data systems, or aligning with high-integrity supply chain actors lays the foundation for a defensible and scalable model of inclusive seafood systems,

anchored in local livelihoods and sustainability goals.

Ultimately, addressing the challenges in small-scale fisheries demands deeply embedded, multi-faceted programmes designed to achieve ecological, economic and social sustainability. These initiatives require patient capital, blended financial support, clear impact expectations, robust measurement frameworks and a strong commitment to broad knowledge-sharing, ensuring that insights gained and progress made can benefit small-scale fisheries globally.



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