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PACÍFICO – Regional Marine Conservation in the
Eastern Tropical Central Pacific

Good Practices and Innovations in the Blue Economy in the Central Eastern Tropical Pacific



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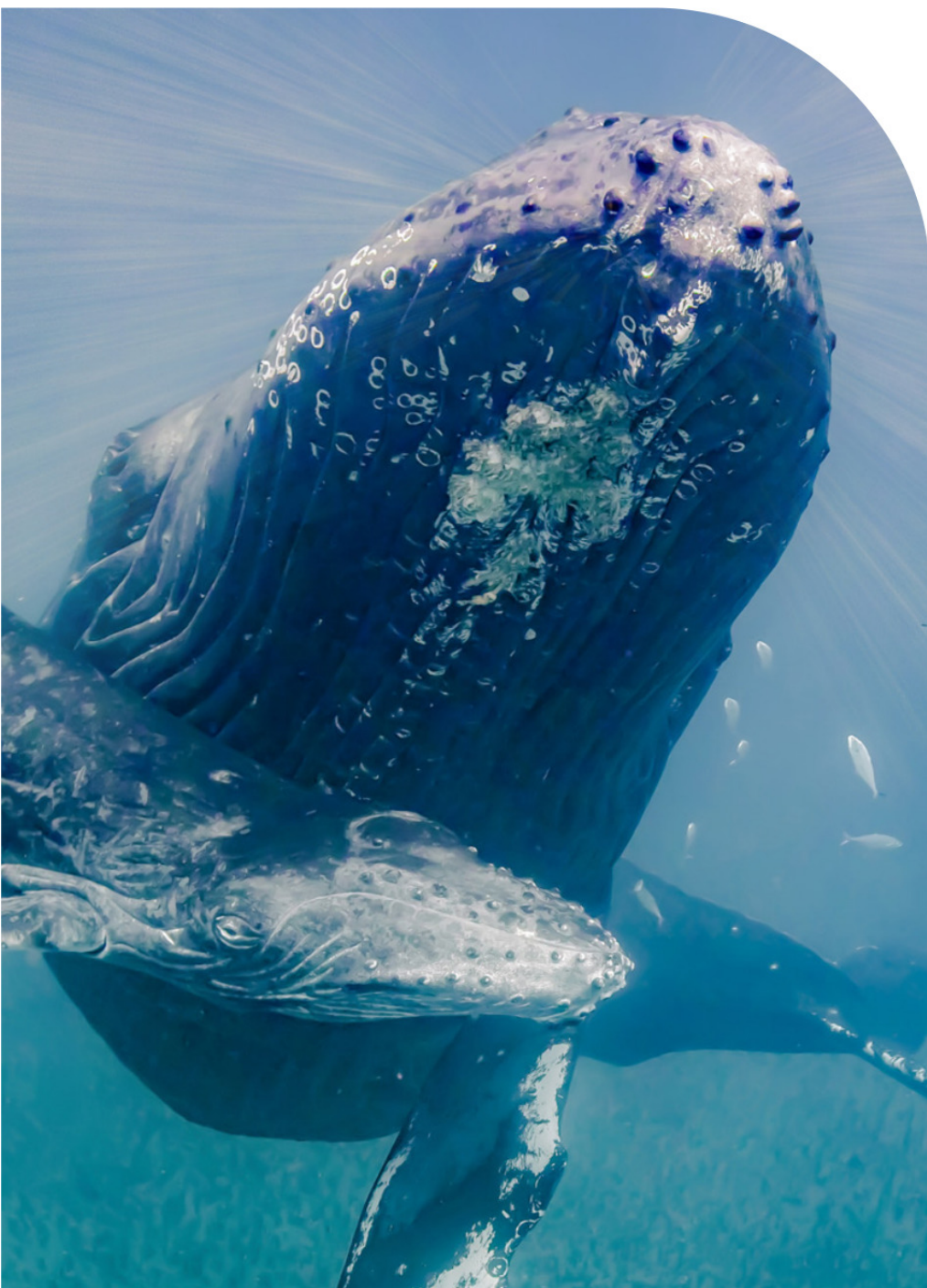
A glossary at the end of this publication explains key terms to assist readers.

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Note on the Scope and Use of Information

The observations and references in this publication draw on documentary sources and the views and perceptions shared by key stakeholders during the review process. Every effort has been made to present this information objectively and fairly; however, these observations do not constitute judgments on the performance, legitimacy, or reputation of the entities mentioned. The inclusion of a stakeholder, initiative, or organization does not imply endorsement, recognition, certification, or liability on the part of PACÍFICO regarding its activities. The purpose of this exercise was to identify lessons learned, opportunities, and areas for collaboration that can strengthen regional conservation and Blue Economy efforts.



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Acronyms

ACRXS	› Asociación Costa Rica por Siempre
CI	› Conservation International
CMAR	› Eastern Tropical Pacific Marine Corridor
DOPA	› Organizational Assessment for Artisanal Fisheries
ETP	› Eastern Tropical Pacific
FEFs	› PACIFICO Founding Environmental Funds
FEPACOIBA	› Federation of Artisanal Fishers in the Area of Influence of Coiba National Park, Panama
FFEM	› French Facility for Global Environment
M&E	› Monitoring and Evaluation
OECD	› Organisation for Economic Co-operation and Development
TUNACONS	› Tuna Conservation Group

Executive Summary

This document presents the findings of a strategic assessment of Blue Economy initiatives and good practices in the Central Eastern Tropical Pacific (Central ETP). Its objective is to synthesize and analyze the region's main Blue Economy initiatives and good practices to identify success factors, innovations, and lessons learned that can help strengthen and scale new initiatives, while informing the design of Blue Economy support instruments and facilities in the region. Funded by the French Facility for Global Environment (FFEM) and implemented by Fundación Pacífico, the initiative seeks to strengthen local capacities and consolidate a model that brings together marine conservation and inclusive economic development.

A combination of desk research, interviews with public, private, and community stakeholders, and analysis of representative case studies in Colombia, Costa Rica, Ecuador, and Panama revealed common patterns and structural challenges: (i) the lack of a shared regional definition of the “Blue Economy”; (ii) the absence of consistent impact metrics; and (iii) institutional fragmentation, which weakens coordination among countries. Limited organizational maturity and restricted access to formal credit were also observed, reinforcing dependence on development assistance.

These findings point to an opportunity to strengthen the Blue Economy ecosystem in the Central ETP through support facilities tailored to each initiative's maturity level. In particular, they highlight the need to support enterprises—including small businesses, community-based organizations, and local ventures—with commercial potential that still require capacity building, organizational strengthening, and access to tailored financing to consolidate their operations and scale up.

Under this approach, support facilities should tailor their financial and technical instruments to each initiative's stage of development: seed capital for early-stage ventures, financing to consolidate growing production models, and credit lines, guarantees, or other financial instruments for scalable initiatives. The regional initiatives analyzed offer relevant lessons regarding traceability, marketing, local governance, and the transition to business models with greater economic and environmental sustainability.

The analysis concludes that the success and scalability of Blue Economy initiatives depend on demonstrated market demand, adequate infrastructure, and robust operational management, while replicability requires clear methodologies and transferable standards. Support for Blue Economy initiatives in the Central ETP should therefore combine financing with ongoing technical assistance, establish common indicators of economic, social, and environmental impact, and promote the active participation of women and youth across value chains.

Finally, the assessment highlights the importance of multilevel governance that brings together the countries of the Eastern Tropical Pacific Marine Corridor (CMAR) within a common monitoring and evaluation framework, ensuring the sustainability and regional coherence of investments. The expected outcome is a stronger, more inclusive, and financially sustainable ecosystem of Blue Economy initiatives in the Central ETP.

Introduction

The Central ETP, comprising Colombia, Costa Rica, Ecuador, and Panama, is a marine and coastal region of major ecological, social, and economic importance. Its ecosystems support exceptional biodiversity, sustain coastal livelihoods, and offer opportunities to advance development models that combine marine conservation, financial sustainability, and local well-being. In this context, the Blue Economy provides a strategic framework for promoting ocean- and coast-based economic activities, provided they contribute to ecosystem conservation, strengthen local capacities, and generate sustainable social and economic benefits.

Through the [FFEM](#), the French Government has awarded a grant to [Fundación Pacífico](#) to implement the “[PACÍFICO – Regional Marine Conservation in the Eastern Tropical Central Pacific](#)” project (the Pacífico–FFEM Project). The initiative aims to contribute to more effective and coordinated management of marine biodiversity in the Central ETP through national and regional coordination, the consolidation of Fundación Pacífico as a regional mechanism, and support for sustainable Blue Economy initiatives.

As part of this project, this report assesses and synthesizes initiatives, good practices, and Blue Economy innovations identified in the Central ETP countries. It aims to analyze these initiatives, practices, and innovations to understand the factors that have enabled their development, the lessons they offer, and how these can guide the strengthening of new, sustainable marine and coastal enterprises. The analysis thus provides a comparative assessment of operating models, organizational capacities, market access, financing requirements, risk management, gender inclusion, and innovation, ensuring that the lessons learned can inform future support programs and financing instruments in the region.

The assessment drew on technical literature, institutional reports, and secondary sources, as well as interviews with key stakeholders involved in marine conservation, artisanal fishing, sustainable tourism, environmental finance, international cooperation, and community development. These inputs informed the identification of representative cases and the analysis of their enabling conditions, key gaps, and opportunities to strengthen their contribution to a sustainable and inclusive Blue Economy.

The report moves from the regional and methodological context to lessons that can inform support for new Blue Economy initiatives. It begins by presenting the methodology used for the assessment, followed by an integrated assessment of the challenges, opportunities, and enabling conditions identified through stakeholder interviews. It then analyzes case studies and good practices in Colombia, Costa Rica, Ecuador, and Panama, highlighting initiatives across different levels of maturity, innovation, and potential for expansion. The subsequent section qualitatively assesses the scalability and replicability of the initiatives reviewed.

Ultimately, it sets out actionable lessons and recommendations to guide future support programs, financing instruments, technical assistance, organizational capacity building, information generation, and stakeholder coordination.

This assessment offers a regional perspective on the types of initiatives emerging in the Blue Economy, the conditions they need to consolidate their operations, and the lessons that can inform a more effective support strategy. Rather than attempting an exhaustive inventory, the document establishes an analytical basis for understanding how existing good practices can inform the design of context-specific initiatives, financial instruments, and technical support tools that advance the sustainable development of marine and coastal communities and ecosystems in the Central ETP.



1. How Was the Assessment Conducted?

The methodology combined desk research, information gathering through interviews (Appendix A), and the structured review and analysis of representative Blue Economy cases in the Central ETP countries—Colombia, Costa Rica, Ecuador, and Panama. The approach sought to identify patterns, innovations, and success factors that would clarify the conditions needed to advance, replicate, and scale Blue Economy initiatives.

The review of secondary sources established a conceptual and geographical framework to guide case selection and the definition of analytical criteria. Interviews provided a deeper understanding of stakeholders' perceptions of the Blue Economy concept, its opportunities and limitations, and the needs associated with implementing projects and initiatives.

Drawing on the secondary-source review and interviews, case studies were identified and characterized to reflect the region's diverse economic and social settings. Each initiative was analyzed against a set of predefined parameters: operating model, business maturity, infrastructure and administration, support needs, financing ranges, risk management, gender considerations, and innovation practices. These parameters enabled a comparative assessment across countries and the identification of conditions that facilitate or constrain the scalability and replicability of initiatives.

The findings are presented progressively: first from the perspective of the stakeholders interviewed, then through an analysis of representative Blue Economy initiatives in the region, and finally through an assessment of their scalability and replicability.

Blue Economy

The concept and scope of the Blue Economy must be clearly understood. The Pacífico–FFEM Project defines the Blue Economy as a model of sustainable and inclusive development based on marine resources that seeks to generate economic and social well-being while conserving and restoring marine and coastal ecosystems. Under its regenerative approach, economic activities should have a net positive impact on ecosystems¹. It is therefore essential to integrate environmental conservation, inclusive social impact, innovation, financial sustainability, and alignment with each country's public policy frameworks (Appendix B) and global goals. Differences between these definitions, although seemingly subtle, affect approaches to supporting or advancing the Blue Economy.

¹ Secretariat of the French Facility for Global Environment (FFEM). 2021. FFEM Steering Committee. Project Commitment Note. "PACÍFICO – Regional Marine Conservation in the Eastern Tropical Central Pacific." Countries: Costa Rica, Panama, Colombia, Ecuador. 79 pp.

Challenges, Opportunities, and Enabling Conditions

Interviews with public, private, and community stakeholders and representatives of the financial system were essential to understanding the current situation and perceptions of the Blue Economy in the Central ETP. Their input identified common support gaps among enterprises—micro and small businesses or organizations—along with structural challenges and coordination opportunities that complement and enrich the desk research. For each stakeholder, the review examined their overall role, their understanding of the Blue Economy, and their experience implementing practices associated with that vision.

The stakeholders consulted expressed broadly consistent views. The interview findings identified strategic challenges and opportunities (Table 1) that can be translated into concrete actions and workstreams to strengthen the Blue Economy in the Central ETP.

Table 1
Challenges identified by stakeholders and opportunities to strengthen the Blue Economy in the Central ETP

Finding	Challenge identified	Opportunity
Local initiatives have limited capacities	Many organizations have limited formalization and management capacity and depend on external support	Design ongoing technical assistance, extending beyond support for project preparation
Gaps in information, baselines, and comparable indicators	A lack of data constrains impact measurement and decision-making	Develop common metrics and a regional system for economic, social, and environmental monitoring
Access to formal financing remains limited	Enterprises do not always meet the requirements for credit or investment	Tailor financial instruments to maturity levels: seed capital, concessional funding, guarantees, or bridge financing
Institutional fragmentation limits coordination	Initiatives develop in isolation, with limited regional coordination	Strengthen multilevel governance and coordination among governments, nongovernmental organizations, environmental funds, and the private sector
Value chain bottlenecks limit market access	Constraints persist in infrastructure, cold chains, traceability, marketing, and market access	Support enabling investments and responsible commercial linkages
The participation of women and young people is an enabling condition for sustainability	Generational renewal and women's leadership are not always integrated systematically	Include gender, youth, and community leadership criteria in the selection and support of initiatives

The following key conclusions suggest approaches for future regional interventions and Blue Economy support facilities in the Central ETP:

1. Capacity building and generational renewal in communities. Coastal communities have low levels of education and organizational management capacity, alongside limited generational renewal. Initiatives such as those of Squalus highlight the need to train fishers in administration and digital tools and to include women and young people to ensure long-term sustainability. A regional facility could develop vocational, leadership, and entrepreneurship training programs focused on women and young people, drawing on the experience of nongovernmental organizations (NGOs) such as MarViva, Conservation International (CI), and Asociación Costa Rica por Siempre (ACRXS) to create content tailored to local conditions.
2. Information, baselines, and impact measurement. Robust data and technical assessments for evaluating the impact of interventions are lacking. Stakeholders emphasized the absence of continuous fisheries statistics and national assessments of fisheries conditions, highlighting the need for common indicators across the Central ETP. A regional facility could encourage the development of regional monitoring methodologies, support fisheries authorities in data collection, and establish a shared repository to inform investors and decision-makers.
3. Tailored financial instruments and links with the banking sector. A regional Blue Economy facility could connect development banks, such as Bancóldex, with endowment funds and multilateral organizations, such as the International Finance Corporation, to design long-term financing instruments. These could combine concessional loans, guarantees, and seed capital suited to the needs of fisheries and tourism value chains².
4. Long-term financial stability. Many initiatives depend on donations and short-term projects. The World Bank report highlights CMAR's lack of stable financing and its secretariat's reliance on ad hoc contributions³. A regional financial facility could consolidate public, private, and philanthropic contributions, create endowment funds, and explore innovative instruments such as blue bonds to ensure continuity. The participation of Fundación Pacífico and its Founding Environmental Funds (FEFs) could help channel resources and attract investors interested in the Blue Economy.

² Bancóldex acknowledges that no specific Blue Economy financial products are available and that clear frameworks and technical knowledge are needed to design green/blue credit lines. Squalus provided examples of communities that struggle to obtain credit and consequently establish internal funds to finance their operations.

³ World Bank. (2025). "Financing Healthy Oceans: Options for Sustaining the Eastern Tropical Pacific Marine Conservation Corridor." Washington, DC: World Bank.

5. Stronger governance and regional coordination. Institutional fragmentation and the absence of regional assessments were identified as obstacles in several interviews⁴. For a regional facility to be effective, PACÍFICO should promote coordination among governments, NGOs, and the private sector and capture and analyze lessons learned. This would help local initiatives, such as community conservation and experiential fishing tourism, scale up and align with the regional strategy.
6. Market access, infrastructure, and value chains. Many Blue Economy initiatives face bottlenecks related to limited infrastructure, weak logistics, low processing capacity, nascent traceability systems, and difficulties accessing stable markets. These gaps reduce opportunities to retain more value locally and leave some organizations dependent on intermediaries or external support. The facility could therefore support enabling investments and facilitate responsible commercial linkages connecting enterprises with buyers, tourism operators, or differentiated markets.

⁴ As an example of this limitation, some interviewees highlighted challenges related to leadership continuity and the availability of dedicated personnel within the CMAR Secretariat, which can constrain coordination among countries. PACÍFICO recognizes this gap and considers it necessary to address it to strengthen coordination and the smooth operation of future regional initiatives.



Photo courtesy of La Cumbancha, Colombia

2. Case Studies and Good Practices

For this analysis, the selected initiatives are businesses or organizations with sustained operations, identified market demand, and growth potential that still need to strengthen technical, organizational, commercial, or financial capacities. They occupy an intermediate segment between initiatives primarily oriented toward household consumption and food security and small businesses with established access to formal financing. The cases analyzed reveal common characteristics and areas that could be further strengthened through future interventions and support mechanisms to advance the Blue Economy in the region.

Eight criteria were defined to identify, select, and characterize businesses or organizations in the Central ETP that demonstrate replicable good practices and serve as examples of initiatives that need support within a regional Blue Economy framework. These criteria included sustainability, organizational maturity, capacity to generate impact, and potential for scaling or replication (Appendix C).

Although these enterprises face many common challenges, important differences exist. Some are further advanced and demonstrate replicable models; others, while at an earlier stage of development, stand out for their longevity and sustained contribution to local economies and marine conservation. Including both types provides a broad view of the regional enterprise landscape and valuable lessons to guide differentiated support strategies.

The following sections present promising initiatives identified in each Central ETP country. All initiatives included in this assessment were selected for their relevance and the lessons they offer for developing the Blue Economy in the Central Eastern Tropical Pacific (Central ETP). The case study boxes do not rank initiatives or compare their performance. Their selection aims to provide a balanced illustration of different approaches, sectors, and types of innovation—such as fisheries, tourism, value addition, and technological development—as well as examples with strong potential for replication or scaling in specific contexts. Together, all the initiatives analyzed offer valuable lessons to inform future initiatives and investments in the region.

I. Colombia

Colombia's Pacific region is characterized by high biological and cultural diversity alongside **high levels of poverty and structural inequality**. Coastal communities, predominantly Afro-descendant and Indigenous, depend on **artisanal fishing, nature-based tourism, and subsistence activities** that face persistent structural constraints. Geographical isolation, limited port and tourism infrastructure, and poor overland connectivity restrict access to markets, basic services, and formal employment. Many local initiatives have thus emerged as community strategies to combine the sustainable use of natural resources with social well-being. These community-based enterprises have strong local roots and operate with limited capital, while structural constraints restrict their opportunities to grow and access financing. Nonetheless, they demonstrate community resilience and a strong capacity to organize in a challenging environment.

The tourism micro-enterprises, fishing associations, and community groups selected as case studies (Table 2) are generally at an **intermediate stage of development**. They possess basic operational structures and technical knowledge, but need **sustained support to improve management, formalization, and access to investment** in order to stabilize incomes and generate decent work. Strengthening these initiatives would help reduce vulnerability and strengthen models for conservation and sustainable local economic development in one of the country's most vulnerable regions.



Photo courtesy of Asociación Raíces Piangueras, Colombia

Table 2
 Colombia case study: adding value to fisheries value chains

Asociación Red de Frío Bahía Solano



Type of initiative

A nonprofit community enterprise comprising four local associations, focused on collecting, processing, preserving, and marketing fish caught by artisanal fishers.

What does it do?

It brings together local associations of fishers and women fish processors to improve fish preservation through cold-chain infrastructure, basic processing, and sales to restaurants and domestic markets. Its model adds value to fish caught by artisanal fishers and reduces losses caused by inadequate infrastructure.

Good practice and innovation

A community cold-chain model combining a collection center, processing plant, cold room, ice plant, basic traceability, and stable commercial partnerships. This case demonstrates how shared infrastructure can improve product quality, strengthen fishers' position in the value chain, and expand marketing opportunities.

What does it need to grow?

Investment to modernize and expand processing capacity, strengthen the cold chain, improve distribution logistics, and develop marketing strategies targeting new markets. Technical support could also help strengthen quality and traceability standards and support future certification efforts.

Relevance to a potential regional facility

Potential to support initiatives with an established track record, basic formalization, operational infrastructure, and commercial relationships. Under appropriate conditions, targeted investment in enabling infrastructure, traceability, and market access can directly improve the economic sustainability of artisanal fishing and strengthen responsible value chains.

Table 3
Overview of Blue Economy initiatives in Colombia

Organization / Entity	Type & Activity	Maturity Level	Infrastructure & Operations	Support Needs	Financing Potential	Risk Management	Gender Inclusion	Good Practices & Innovations
Asociación Red de Frío Bahía Solano ⁵	Asociación Red de Frío Bahía Solano emerged as a local response to the lack of adequate infrastructure for preserving and marketing fish in Colombia's Pacific region. It comprises four local associations: three of fishers and one of women fish processors.	A formally established nonprofit enterprise with more than 15 years of experience. It maintains stable commercial partnerships with restaurants and domestic markets and keeps accounting records.	It has a collection center with a processing plant, cold room, and ice plant, as well as artisanal fishing vessels and refrigeration equipment. Staff are trained in responsible fishing and food handling. It maintains formal accounting records and basic product traceability from catch to sale.	Low: Support is primarily needed to improve processing capacity, expand the cold chain, and strengthen marketing and export strategies, rather than to formalize operations or establish basic capacities.	USD 100,000–150,000 in capital to modernize the processing plant, expand the cold chain, and strengthen logistics and marketing.	Medium–low risk: Dependence on artisanal catches and weather conditions that may affect fishing and transport.	Women participate actively in processing, quality control, administration, and marketing. Although no formal gender policy is mentioned, the operating structure demonstrates effective inclusion and women's leadership in practice.	Its innovative community cold-chain model improves fish quality and value.
Community Association of Women Mangrove Cockle Harvesters of Bahía Málaga ⁶	An association of women mangrove cockle harvesters established in 2019, engaged in the traditional economic activity of responsible cockle harvesting.	It has a formal structure, strong community leadership, and proven experience managing social and environmental projects. Its commercial activities are still at an early stage. It relies primarily on development cooperation and project funding and needs to strengthen its productive activities to become profitable.	It has people with training in environmental education, community management, and mangrove conservation. Basic administrative records are maintained through project implementation.	Medium–high: An early-stage enterprise still defining its production infrastructure, formal accounting systems, and market strategies. It needs organizational strengthening, business management training, and a sustainable income-generating activity to progress toward financial self-sufficiency.	USD 20,000–40,000, primarily to formalize administrative processes, strengthen financial management capacities, and purchase basic equipment for productive activities or community ecotourism linked to mangrove conservation.	Medium–high risk: Limited infrastructure and productive assets, weak formal accounting practices, and dependence on external financing.	Women lead conservation and environmental education activities and are central to community efforts.	It promotes environmental sustainability through mangrove protection and restoration, environmental education, and the transmission of traditional knowledge.

⁵ Asociación Red de Frío Bahía Solano. (2026). Strengthening Artisanal Fishing Communities. Redefrío Responsible Artisanal Fishing.

⁶ Raíces Piangueras. (2019). Women Who Conserve Mangroves and Protect Life.

Organization / Entity	Type & Activity	Maturity Level	Infrastructure & Operations	Support Needs	Financing Potential	Risk Management	Gender Inclusion	Good Practices & Innovations
Grupo Ecoguías de Coquí	It began as a group of young people who came together to introduce visitors to the mangrove ecosystem through tourism, thereby creating employment.	Established in 1994, the group has a long track record. Members hold official credentials from the National Learning Service (SENA) and have developed specializations in marine diversity. It is formally constituted as a solidarity economy organization, with stable access to tourism markets and partnerships with operators and environmental institutions.	It has trails, reception areas, community cabins, and boats and engines for tourist transport. Local guides are trained in ecotourism and conservation. It maintains basic accounting records.	Medium: It needs stronger accounting procedures, promotion, and administrative management. Business training, marketing, and improvements to tourism infrastructure are needed more than formalization or institution building.	USD 30,000–60,000 to improve tourism infrastructure—cabins, signage, and boats—strengthen accounting practices and develop digital marketing strategies.	Medium risk: Tourism seasonality and infrastructure constraints.	The group is predominantly male. It has no internal gender equity policies or formal arrangements to promote women's participation, although it collaborates with women's groups in the community.	It promotes responsible tourism, environmental education, and innovation through community-led ecological and cultural tours.
Asociación Ecológica de Operadores Turísticos Aguas Calientes los Anturios de Jurubirá ⁷	A civil society organization providing tourist guiding services, including indirect provision of accommodation or complementary tourism support. It does not market agricultural or fishery products or undertake industrial processing.	Formally recognized as a green business by the Regional Autonomous Corporation for the Sustainable Development of Chocó, within the National Environmental System, demonstrating basic regulatory compliance. It has operated consistently since 2006 and has local access to tourism markets, although promotion is limited.	It has trails and rest areas but no accommodation or processing plant of its own. It uses local boats, has guides trained in ecotourism, and keeps basic accounting records.	Medium: It needs to consolidate its administrative structure, accounting procedures, and promotion.	USD 20,000–40,000 to improve tourism infrastructure, transport equipment, and accounting practices, and strengthen promotion and digital marketing.	Medium risk: Tourism seasonality and limited infrastructure to accommodate greater demand.	Women's participation is low, as most guides and tourism operators are men from the community. There are no internal gender policies or formal arrangements to promote women's leadership.	It allocates 40% of funds to community needs, 30% to trail maintenance and cleaning of the pools, and 30% to income for organization members.
Circuito de Turismo Alternativo La Cumbancha S.A.S.	A community-based sustainable tourism enterprise integrating accommodation, local cuisine, guiding, transport, and cultural experiences.	It is structured as an S.A.S. company, with 27 members and more than 145 local tourism service providers. It has a business plan, formal technical support, and established community governance.	Distributed community infrastructure: accommodation, local transport, and tourism services. The investment proposal identifies a need for a web platform, accounting system, administrative office in Nuquí, and a motorboat.	Medium: It needs stronger commercial capacities, digital marketing, an established booking platform, professional accounting, and ongoing training in sustainable tourism.	USD 80,000–150,000 for a web/CRM platform, administrative office, motorboat purchase or lease, training, and marketing.	Medium risk: Infrastructure gaps in Nuquí, dependence on weather conditions, limited logistical connectivity, and exposure to fluctuations in the tourism market.	Extensive participation by women in food services, accommodation, culture, and guiding, with opportunities for women's leadership in tourism governance.	Community coordination of tourism offerings, use of sustainability standards, and collaboration with local operators.

⁷ Government of Colombia. (2024). Asociación Ecológica de Operadores Turísticos Aguas Calientes los Anturios de Jurubirá.

II. Costa Rica

The Costa Rican cases focus on the Gulf of Nicoya, an area of high marine biodiversity where artisanal fishing, aquaculture, and ecotourism are the main livelihoods (Table 5). Two businesses stand out for strengthening their position in the value chain by incorporating new processing, marketing, and service activities, allowing them to retain more economic value and access new markets: Coco's Tours and Cama-Pez de la Costa.

Supporting these two established businesses could generate multiplier effects. With its reputation and fleet, Coco's Tours could become an anchor partner for community operators on Isla Venado, in Costa de Pájaros, or elsewhere, integrating them as service providers or including their routes in tour packages. Cama-Pez could incorporate fishers and aquaculture producers from mixed associations as certified suppliers and collaborate with tourism operators to offer educational experiences in responsible fishing and local cuisine. These linkages would strengthen the regional value chain, diversify incomes, and consolidate markets for smaller initiatives.

Other cases, including mixed associations of women oyster farmers and small community-based tourism organizations, are at an early stage of maturity. They lack formal tax registration, accounting systems, and packing facilities, operate on a small scale, and depend on a single product or season. They require substantial support, including initial investment, business management training, and legal formalization. These differences illustrate the range of business development stages in the Gulf of Nicoya.

Raising Coral, in Golfo Dulce, illustrates a different Blue Economy pathway by integrating coral restoration, scientific tourism, and environmental education. It demonstrates the potential to develop new economic activities based on ecosystem recovery and growing demand for tourism experiences centered on science and conservation.



Photo courtesy of Raising Coral, Costa Rica

Table 4
 Costa Rica case study: diversifying marine tourism services

Coco's Tours



Type of initiative

A small, family-owned ecotourism business in Punta Morales, offering dining services, marine tours, responsible sport fishing, birdwatching, and mangrove tours.

What does it do?

It operates as a local tour company, having evolved from a family restaurant into a more diversified tourism business. It combines local cuisine, customized tours, marine and coastal activities, and nature experiences, using boats, trained guides, and online booking systems while providing local employment.

Good practice and innovation

Integration of local cuisine, marine tourism, and environmental education within a formally established family business. It demonstrates how a local business can diversify its offerings, build on the Gulf of Nicoya's natural attractions, and generate community employment while maintaining an identity rooted in sustainability and local connections.

What does it need to grow?

Capital to expand its fleet, strengthen digital marketing, improve tracking systems, and work toward tourism certifications that consolidate its market position. Strategies to reduce dependence on tourism seasonality and expand partnerships with other local community operators would also be beneficial.

Relevance to a potential regional facility

An established local enterprise with formal registration, operational infrastructure, a strong reputation, and the capacity to develop value chain linkages. Strengthening it could make it a key partner in integrating smaller community operators and expanding blue tourism offerings in the Gulf of Nicoya.

Table 5
Overview of Blue Economy initiatives in Costa Rica

Organization / Entity	Type & Activity	Maturity Level	Infrastructure & Operations	Support Needs	Financing Potential	Risk Management	Gender Inclusion	Good Practices & Innovations
Coco's Tours (formerly Cocos Island) ⁸	A small ecotourism business in Punta Morales. It began as a restaurant and evolved into a tour operator, offering customized tours—mangroves, sport fishing, and birdwatching—and culinary packages.	An established family business operating for more than a decade. Formally registered in tourism, its mission emphasizes sustainability and local employment. It participated in MarViva and Conservation International's acceleration and support program to diversify its activities.	It has its own restaurant, boats, safety equipment, trained guides, and online booking systems. It maintains records and uses electronic invoicing.	Low: Capital is needed to expand the fleet, strengthen digital marketing, and obtain tourism certifications.	USD 50,000–150,000 to expand the fleet and implement tracking systems and marketing activities.	Medium risk: Dependence on tourism seasonality is balanced by an established reputation and partnerships; formalization reduces regulatory risk.	Women participate in operations, including restaurant service and guiding, but there is no explicit policy. This is an area for improvement.	It innovated by integrating local cuisine with marine tours; it promotes environmental education, uses social media to attract visitors, and supports local employment.
Cama-Pez de la Costa	A small family business founded by a couple, Mónica and Manrique. It operates as a collection center and processing plant in Costa de Pájaros, buying legally caught fish from artisanal fishers, processing, packing, and distributing it.	Operating since 2010 and formalized with MarViva's advice, it pays fair prices, monitors catch sizes and fishing seasons, and sells to restaurants and end consumers. It obtained a loan through the Development Banking System and holds sanitary permits. It offers educational responsible fishing tours.	A processing plant with cold rooms and packing equipment; purchase and sales records; and a responsible fishing label. It has its own brand and basic accounting systems.	Medium: It needs stronger financial management, digital marketing, and access to new markets.	USD 50,000–200,000 to modernize the plant, obtain HACCP certification, and expand the distribution fleet.	Low–medium risk: Infrastructure and contractual agreements reduce risk, but the business depends on fish availability and agreements with fishers.	Strong family participation. Training programs for women in processing and sales could be strengthened.	Good practice: implementation of traceability, sustainable catch agreements, and educational tours.
Asociación de Pescadores Mixta de Montero (ASOMIXTA or ASOPECUPACHI)	Organizations of women and producers engaged in rural tourism and aquaculture. They farm oysters and mussels in mangroves and provide basic accommodation and kayak tours.	Early-stage maturity. Over the past 10 years, they have received support from Conservation International, MarViva, the National University of Costa Rica, the State Distance University, and the Joint Institute for Social Assistance. They operate on a small scale without formal tax registration; the lack of a packing facility has constrained expansion.	Basic facilities, low-technology production, and no quality criteria. They lack accounting systems.	High: Formalization, sanitary permits, and business management training are needed.	USD 10,000–50,000 to build a packing facility and improve accommodation and marketing.	High risk: The lack of permits and dependence on a single product—oysters—create uncertainty.	Women-led organizations that empower women oyster farmers and promote equity.	Innovation: shellfish farming as an alternative to fishing, integration with tourism, and participation in the Ostras del Golfo certification scheme.

⁸ Coco's Tours. (2024). About Us. Coco's Tours.

Organization / Entity	Type & Activity	Maturity Level	Infrastructure & Operations	Support Needs	Financing Potential	Risk Management	Gender Inclusion	Good Practices & Innovations
Asociación Raising Coral Costa Rica	An organization operating through a hybrid conservation and tourism model.	It has a strong technical model and partnerships with Asociación Costa Rica por Siempre, Germany's international cooperation agency, universities, and tourism operators. It operates through a formal structure with a proven track record in coral restoration and regenerative tourism.	It has coral nurseries, diving and monitoring equipment, and a restoration team; coordinates with hotels, guides, and tourism operators; and receives administrative support from Asociación Costa Rica por Siempre.	Medium–high: It needs professional expertise in regenerative tourism product design, specialized marketing, business structuring, and stronger administrative capacity within the community.	USD 100,000–500,000, including market research, personnel, technical equipment, and marketing.	Medium risk: Operational and biological risks, including coral mortality, variable tourism demand, and dependence on environmental permits; mitigated by strong partnerships and standardized protocols.	It prioritizes women and young people as coral gardeners and regenerative tourism guides.	It implements a structured marine citizen science model in which community members and tourism workers are trained as “coral gardeners” to monitor fragments, record coral growth and health, and report data in real time to Asociación Costa Rica por Siempre's technical platform, ensuring consistent information that supports management decisions.
Other community tours (Gulf of Nicoya: Isla Venado, Costa de Pájaros)	Small community organizations offering rural guesthouses, boat tours, and hiking.	Formalization is needed. Some have received training in good practices but lack records and marketing capacities.	Basic boats and simple accommodation; no accounting systems.	High: Comprehensive technical assistance is needed in formalization, marketing, and safety.	USD 5,000–30,000, depending on size, and possibly less.	High risk: Dependence on donations and the need to obtain permits.	Significant participation by women, although in secondary roles.	Integration with conservation and local culture; production of handicrafts and traditional cuisine.

III. Ecuador

Ecuador's coastal zone supports high biological diversity and local communities whose economies depend primarily on artisanal fishing, nature-based tourism, and complementary conservation-related activities. As elsewhere in the Central ETP, these communities face persistent constraints in business formalization, access to financing, certification, productive infrastructure, and regulatory compliance, particularly in fisheries and tourism.

Over the past decade, community initiatives and local associations have emerged that combine economic activities with sustainable management, environmental education, and organizational capacity building. These initiatives reflect a dynamic socioeconomic landscape in which grassroots organizations play a central role in local management, compliance with administrative requirements, and coordination with public and private stakeholders.

The analysis of Ecuador's coastal initiatives (Table 7) identifies organizations with established operations and sustainable practices that nevertheless remain at an intermediate stage of business development. They have stable economic activities and community recognition but lack access to investment instruments that would enable them to improve productive assets, adopt more rigorous technical standards, and consolidate competitive business models. This gap is reflected in their dependence on grants, limited financial management capacity, and need for intensive technical support to scale up.

Thus, Ecuador faces conditions similar to those elsewhere in the region: family microenterprises, fishing cooperatives, and community organizations that have operated for years, partially meet formal requirements, and have adopted good practices, but still need intermediate-stage financing and ongoing technical assistance to strengthen their position in tourism and fisheries markets. These organizations represent a crucial segment to support through Blue Economy technical and financial facilities, given their potential to generate environmental and social benefits in the country's rural, marine, and coastal areas.



Photo courtesy of ASOSALAN, Ecuador

Table 6
 Ecuador case study: applying the circular economy to marine resources

ECOFADTORY S.A.S.



Type of initiative

A pilot initiative focused on manufacturing biodegradable devices for tuna fishing through a circular economy business model and local production linkages.

What does it do?

It produces biodegradable devices for the tuna sector under an EcoFAD assembly agreement with TUNACONS, connecting small-scale farmers supplying natural fibers, artisans specializing in weaving and rope-making, and coastal communities involved in final production stages. Its model seeks to replace conventional inputs with biodegradable alternatives, generating income across different areas and production sectors.

Good practice and innovation

Its main innovation lies in technology and production: a biodegradable solution for tuna fishing with the potential to reduce environmental impacts and strengthen local value chains. The initiative combines circular economy principles, applied innovation, active contracts, and relationships with tuna industry associations, giving it a business profile with strong growth potential.

What does it need to grow?

Support to expand production capacity, strengthen monitoring, reporting, and verification systems, establish baselines, design safeguards, and manage financial, technological, and environmental risks. It also needs to secure wider product adoption in the tuna sector and ensure that expansion maintains environmental and social performance standards.

Relevance to a potential regional facility

It represents a different type of Blue Economy initiative: an innovative business with a product that can be standardized, commercial capacities, and scaling potential. It offers lessons on supporting technological solutions that connect marine conservation, production innovation, local supply chains, and environmental risk reduction in larger-scale fisheries.

Table 7
Overview of Blue Economy initiatives in Ecuador

Organization / Entity	Type & Activity	Maturity Level	Infrastructure & Operations	Support Needs	Financing Potential	Risk Management	Gender Inclusion	Good Practices & Innovations
Asociación de Pescadores Artesanales y Buzos de Salango (ASOSALAN)	Established by fishers from the Salango community, its activities include fishing and policy advocacy. Its efforts include a responsible fishing initiative in Manabí, Machalilla National Park.	An established association legally constituted as a limited liability entity, with more than 10 years of operation, a strong governance structure, and experience in public policy advocacy.	It has robust bylaws, clear roles, functional governance, basic administration, and previous support from international development cooperation.	Medium–high: Support is needed to strengthen monitoring and evaluation (M&E), improve financial management, and build technical skills.	USD 100,000–180,000 to establish a comprehensive M&E system, strengthen financial management, improve the value chain, and provide technical training.	Medium–high risk: Dependence on key leaders, with scope to improve financial monitoring and M&E.	Gender considerations have not been formalized.	Its policy advocacy has contributed to fisheries rules and regulations.
ECOFADTORY S.A.S.	A private enterprise whose business model centers on manufacturing biodegradable devices for tuna fishing. It connects small-scale natural fiber farmers, Andean artisans specializing in weaving and rope-making, and coastal communities involved in final production, generating income across local areas.	A young business established two years ago, it has demonstrated strong operational and commercial capacity, with active contracts and agreements with tuna industry associations.	It has a solid structure, functional financial controls, and installed production capacity.	Medium–high: Support is needed in M&E, risk prioritization and mitigation—including financial risks—safeguard development, monitoring plans, and baselines.	USD 180,000–300,000 to expand production capacity, establish an M&E system, and develop and implement safeguards.	Medium–high risk: Dependence on product adoption by the tuna sector and product-related technological risks.	No information is available on gender in this initiative.	Technological innovation, a circular economy model, and local production linkages.
Asociación de Pescadores Artesanales Cangrejeros y Afines Sabana Grande Nueva Esperanza	A community organization engaged in mangrove stewardship and artisanal fishing.	Low operational maturity, at an early stage and undergoing formal establishment. No evidence is available of its legal incorporation, governance structure, or experience.	It needs to strengthen the administrative and governance structure currently being defined.	High: Support is needed in governance, administration, finance, and M&E, together with intensive technical assistance.	USD 200,000–250,000 for establishing organizational and governance structures, M&E implementation, and technical support.	High risk: Capacity-building needs, weak governance, disorganized financial information, and limited adoption of technological tools. Potential internal conflicts over control over harvests must be managed.	No evidence is available on gender, but its community-based nature offers considerable potential to include women.	Implementation of a digital platform linking mangrove stewardship with harvest management and product traceability.

IV. Panama

Panama's Pacific region, particularly the Gulf of Montijo and communities near Coiba National Park, shares with Colombia and Costa Rica a high level of biodiversity and rural economies based primarily on artisanal fishing, nature-based tourism, and complementary activities. The area faces challenges related to limited market access, insufficient basic tourism infrastructure, and few opportunities to diversify income streams.

Over the past ten years, through the efforts and technical and financial support of several organizations, community microenterprises and local organizations have emerged that combine economic activities with conservation and social development goals. This report identifies organizations with the potential to strengthen the local economy (Table 9), illustrating how the local economic network is closely connected through community-based organizations that play a key role in resource management, progressive formalization, and local coordination.

The case studies of organizations and family-run tourism microenterprises in Panama illustrate a common financing gap: businesses have operated for years but have limited opportunities to invest and, consequently, limited scope to grow. All meet some formal requirements and follow sustainable practices, yet they need intermediate-stage financing and technical support to consolidate and scale their operations.



Photo courtesy of FEPACOIBA, Panama

Table 8
 Panama case study: collective organization for sustainable fishing

FEPACOIBA



Type of initiative

A community-based federation of artisanal fishers comprising associations in the area of influence of Coiba National Park and the Gulf of Montijo.

What does it do?

It brings together artisanal fishing organizations to promote the conservation and sustainable management of marine and coastal resources while advancing the socioeconomic development of fishing communities. Its model combines community organization, responsible fishing, collection centers, cold chains, satellite monitoring, and progressive development of direct sales.

Good practice and innovation

An established federation model for responsible artisanal fishing, built through more than a decade of technical support. It features selective fishing gear, catch size controls, satellite traceability, group insurance, stronger digital accounting, and increasing representation of women on boards. It demonstrates how community organization can evolve into a local platform for fisheries management and responsible marketing.

What does it need to grow?

It needs stronger accounting systems, an expanded processing plant, established marketing and direct sales strategies, and improved cold chains and traceability. Investment is also needed in equipment, logistics, and administrative capacity to reduce dependence on intermediaries and increase the value retained by fishing communities.

Relevance to a potential regional facility

It combines a community base, formalization, infrastructure, fisheries governance, sustainability practices, and monitoring. Its experience demonstrates how fishing federations can become strategic channels for technical assistance, financing, and enabling investments benefiting multiple local associations, with the potential to strengthen an already organized fisheries value chain.

Table 9
 Overview of Blue Economy initiatives in Panama

Organization / Entity	Type & Activity	Maturity Level	Infrastructure & Operations	Support Needs	Financing Potential	Risk Management	Gender Inclusion	Good Practices & Innovations
Federation of Artisanal Fishers in the Area of Influence of Coiba National Park, Panama (FEPACOIBA)	An organization encompassing 13 ⁹ artisanal fishing associations in the Gulf of Montijo, Panama, involving more than 260 families. They seek to promote the conservation and management of the marine and coastal resources of Coiba National Park and surrounding areas while advancing community socioeconomic development. It emerged from more than a decade of technical support from Fundación MarViva, which helped local fishing associations evolve into a formally constituted federation.	A legally constituted, nonprofit, community-based organization serving the public interest. Established six years ago, it draws on the experience of its member organizations. It has internal bylaws and records and is developing digital accounting and private group insurance arrangements.	It has several fish collection centers equipped with storage areas and cold chains, as well as artisanal fishing vessels with outboard motors. More than 90% of the fleet is satellite-monitored ¹⁰ . It is developing a plant and sales logistics hub in Veraguas.	Medium: Support is needed to strengthen accounting systems, expand the processing plant, and consolidate marketing and direct sales strategies.	USD 50,000–150,000 to equip the processing plant, strengthen digital accounting, and expand the cold chain and traceability.	Medium–low risk: Dependence on artisanal catches, climate vulnerability, and still-limited processing and direct sales infrastructure.	Its gender committee has become stronger, and women's participation has increased on the boards of beneficiary organizations that are members of the federation ¹¹ .	It uses selective fishing gear, catch size controls, and satellite traceability to ensure environmental sustainability. Community and women's leadership, group insurance, and social reinvestment support responsible, self-managed operations.
Eco Ruta Tortuga ¹² , Fundación Agua y Tierra ¹³	An NGO promoting marine and coastal conservation through direct local community participation. Its main initiative is Eco Ruta Tortuga, a sustainable community tourism model developed with local enterprises.	It has 14 years of project management experience, a code of ethics and conduct, an administrative procedures manual, and a 2020–2025 Strategic Plan due for renewal. It is legally constituted.	It needs stronger promotion, more diverse services, and stronger financing facilities to sustain and scale operations. Tourism infrastructure, equipment, and marketing also require improvement.	Medium: It needs stronger accounting procedures, marketing strategies, and capacity to attract international visitors.	USD 30,000–60,000. It has a formal structure and stable operations but needs resources to improve tourism infrastructure, strengthen digital marketing, and improve professional standards in administration and accounting.	Medium–low risk: Its main vulnerabilities are tourism seasonality—dependence on turtle nesting season—and limited infrastructure to accommodate greater demand.	Several women lead community groups and conservation projects, participating in monitoring, tourist guiding, and local administration. Although no formal written gender policy exists, the organization promotes women's leadership and youth inclusion in practice.	Business innovation through Eco Ruta Tortuga. It also promotes local self-management, women's and youth leadership, and reinvestment of proceeds in education and conservation programs.

⁹ Federation of Artisanal Fishers in the Area of Influence of Coiba National Park (FEPACOIBA). (2021). Member Groups. FEPACOIBA.

¹⁰ FEPACOIBA Satellite Fisheries Monitoring Center. (2023). How Does the FEPACOIBA Fisheries Monitoring Center Work?

¹¹ González, E., & Del Cid, V. (2023). Pocket Guide to Gender Management in Artisanal Fishing Organizations. MarViva.

¹² Eco Ruta Tortuga Panamá. [User]. (n.d.). Eco Ruta Tortuga Panamá [Profile]. Instagram.

¹³ Fundación Agua y Tierra (FUNDAT). (2024).

Organization / Entity	Type & Activity	Maturity Level	Infrastructure & Operations	Support Needs	Financing Potential	Risk Management	Gender Inclusion	Good Practices & Innovations
Pacto Azul (Panamanian Community Tourism Alliance) ¹⁴	Established as a public–private coordination initiative to promote marine and coastal sustainability, it provides a service platform for businesses, communities, and local governments seeking to improve environmental and social practices.	It has only recently begun operating, but it builds on the institutional track record of the Panamanian Foundation for Sustainable Tourism, providing formal standing and strong technical support. Partnerships give it good access to national and international markets.	It has no physical facilities or production equipment of its own, operating as a technical certification and support program rather than a production business. Its infrastructure consists of the offices and administrative resources of the Panamanian Tourism Foundation, through which it maintains administrative and accounting records.	Low: It needs to expand its reach, strengthen its certification strategy, and improve brand positioning.	USD 50,000–100,000 to strengthen its certification platform, reach new coastal destinations, and improve digital tools and marketing strategies.	Low risk: Dependence on external financing and the need to maintain strategic partnerships to sustain operations.	It incorporates gender equity as a cross-cutting principle in its sustainable tourism and Blue Economy programs. It promotes women's active participation in coastal community and business projects.	It encourages coastal communities to participate actively in tourism management, strengthening local capacities and generating sustainable income linked to environmental protection.
Hostal Iguana Verde ¹⁵ (Malena) ¹⁶	A family microenterprise and community ecotourism center offering basic accommodation, sea turtle conservation experiences, hiking, and local cuisine.	It began operating more than a decade ago as part of the ACOPLAMA community project. It has a recognized track record in volunteer and ecotourism, a stable presence on booking platforms, and a good online reputation. An established enterprise at an intermediate stage of development.	It has basic rooms, common areas, a shared kitchen, and gardens. It operates as a rural community guesthouse, with records and functional internal management but limited digitalization and accounting systems.	Medium: Investment is needed to upgrade facilities with environmentally sustainable infrastructure, develop online booking systems, strengthen digital marketing, and consolidate formal accounting.	USD 20,000–50,000 for infrastructure, booking technology, and tourism promotion.	Medium risk: Tourism seasonality and infrastructure constraints. Compliance with basic regulations and community backing reduce operational risks.	Managed by ACOPLAMA members, with active participation by women in accommodation and cooking. There is scope to strengthen women's leadership in management.	It integrates tourism with sea turtle conservation, environmental education, and community activities. It promotes responsible, low-impact tourism and social reinvestment in local conservation.

¹⁴ Pacto Azul (Panamanian Community Tourism Alliance). (2019). PACTO: A National Regenerative Community Tourism Strategy for Panama. Panamanian Foundation for Sustainable Tourism.

¹⁵ Tripadvisor. (2024). Hostal Iguana Verde. Tripadvisor.

¹⁶ Gente Malena. (2024). Ecotourism. Gente Malena.

3. Scalability and Replicability

Scalability and replicability are key criteria for directing technical and financial support to Blue Economy initiatives. Scalability indicates whether an initiative can grow within its existing context without compromising economic, social, and environmental sustainability; replicability indicates whether a model, practice, or lesson can be adapted to other locations or communities in the region.

Using the parameters defined for this assessment (Appendix D), a qualitative, illustrative assessment classified the initiatives' scalability and replicability potential as high, medium, or low. This assessment does not establish a definitive ranking; it identifies enabling conditions, capacity gaps, and opportunities to build a more strategically focused regional portfolio of projects.



Scalability

Scalability is an initiative's capacity to increase output or expand its reach within the same context while maintaining performance and sustainability. For Blue Economy initiatives, this means expanding the provision of products or services—more organizations, greater production, or more beneficiaries—without sacrificing quality or ecological and social sustainability. Scalability depends on market demand, operational capacity—infrastructure, logistics, and human resources—and access to financing. An initiative is scalable when demand, installed capacity, and capital are sufficient to support orderly growth; scalability is low when the market is small or logistical conditions limit expansion.



Replicability

Replicability is the potential to transfer a successful model to other locations or communities. It requires the conditions that made the original project viable to be reproduced or adapted in another context. Replicability is high when a model uses common practices and technologies, can adapt to different settings, and does not depend on unique conditions. It is low when success depends on highly specific local factors—location, exclusive commercial relationships, or unique resources—or requires investment that is difficult to obtain. Assessing replicability also involves determining whether clear methodologies or standards facilitate adoption, as illustrated by the Organizational Assessment for Artisanal Fisheries (DOPA), which provides criteria for determining when an organization is ready to join value chains (Appendix E).

Summary Assessment: Scalability and Replicability Levels

Table 10 provides an indicative assessment of the scalability and replicability potential of the initiatives analyzed. The final column summarizes the analysis. Depending on the case, it identifies the entity leading the good practice or the initiative itself when that is the primary focus of analysis.

Table 10
Potential for scalability and replicability of the initiatives analyzed

Entity or initiative	Replicability	Scalability	Integrated assessment
Asociación Red de Frío Bahía Solano	Medium	Medium	It has a collection center, processing plant, cold room, and ice plant, along with commercial partnerships and formal accounting records. Its community cold-chain and traceability model could be replicated elsewhere with infrastructure investment, but depends on costly logistics and artisanal catch availability. Growth requires expansion of the plant and cold chain and stronger marketing.
Community Association of Women Mangrove Cockle Harvesters of Bahía Málaga	Medium	Low	A women's organization engaged in responsible mangrove cockle harvesting, with leadership and conservation experience. Its commercial activities are still at an early stage and depend on development cooperation projects. Replication in other mangrove communities may be possible but requires training and access to local resources. Scaling is constrained by limited productive infrastructure and the current need for market strategies.
Grupo Ecoguías de Coquí	Medium	Medium	A group with almost 30 years of ecotourism experience, with trails, cabins, boats, and trained guides. Its model could be adapted to other locations with natural attractions, although management and marketing training are needed. Growth depends on tourism seasonality and improvements in accounting, digital promotion, and tourism infrastructure.
Asociación Ecológica de Operadores Turísticos Aguas Calientes los Anturios de Jurubirá	Medium	Low	Recognized as a green business, it offers guided tours and access to trails but lacks accommodation and a processing plant and needs stronger accounting procedures and marketing. Its ecotourism model can be replicated in other communities, although each case requires significant investment. Scalability is low because of seasonality, limited infrastructure, and the absence of formal accommodation.
La Cumbancha S.A.S.	Medium	Medium	"Community-based tourism anchored in a strong organizational base. Scalability depends on infrastructure development and market access; the model is highly replicable in similar coastal contexts with established community governance."
Coco's Tours (formerly Cocos Island)	Medium	High	An established small family business operating a restaurant and customized tours, with boats, online booking systems, and electronic invoicing. Combining local cuisine with tourism can be adapted to other destinations but is linked to a specific natural attraction, giving it medium replicability. Scalability is high: tourism demand exists, and the business primarily needs capital to expand its fleet and improve digital marketing.

Entity or initiative	Replicability	Scalability	Integrated assessment
Cama-Pez de la Costa	Medium	Medium	It operates a collection center and processing plant with cold rooms and a responsible fishing label, maintains accounting records, and holds a sanitary permit. The model could be replicated elsewhere through investment in facilities and certification, but requires capital and technical support. Growth is moderately constrained by plant modernization needs and potentially by fish stock conditions.
Asociación de Pescadores Mixta de Montero (ASOMIXTA/ASOPECUPACHI)	Medium	Low	These organizations bring together women and mangrove oyster and mussel producers. Despite assistance from several institutions, they operate on a small scale without accounting systems or a packing facility. Shellfish farming and rural tourism can be replicated in other mangroves but depend on environmental conditions, formalization, and sanitary permits. Scalability is low because of dependence on a single product and insufficient infrastructure and market access.
Asociación Raising Coral	Medium	High	Regenerative tourism and coral restoration. Scaling depends on technical and environmental requirements; citizen science protocols make the model highly replicable.
Other community tours (Gulf of Nicoya: Isla Venado, Costa de Pájaros)	Medium	Low	Small organizations informally offering boat tours and simple accommodation, without accounting records or marketing and dependent on donations. Their community tourism model can be replicated in other coastal communities but needs comprehensive technical assistance—formalization, safety, and marketing—and support to generate demand. Scalability is low because of inadequate infrastructure and a limited customer base.
Federation of Artisanal Fishers in the Area of Influence of Coiba National Park (FEPACOIBA)	Medium	Medium	A federation of 13 associations with collection centers, cold chains, satellite-monitored boats, and digital accounting, currently developing a processing and logistics plant. Its federation model can be adapted elsewhere with technical advice but requires years of support and institutional development. It can grow by consolidating its processing plant and cold chain, although it remains dependent on artisanal catches and weather conditions.
Eco Ruta Tortuga (Fundación Agua y Tierra)	Medium	Medium	An organization with 14 years of marine conservation experience that operates Eco Ruta Tortuga. It has codes of conduct and a procedures manual but needs better tourism infrastructure and more diverse services. Its conservation tourism model can be replicated in other marine settings but depends on specific natural resources and turtle nesting season. Scalability is medium because investment is needed to professionalize operations and attract international visitors.
Pacto Azul (Panamanian Community Tourism Alliance)	High	Medium	A certification initiative backed by the Panamanian Foundation for Sustainable Tourism, operating as a support platform rather than a production enterprise. Its model is highly replicable because it provides standards and tools that other coastal communities can adopt through government and business partnerships. Scalability is medium: resources are needed to expand the certification platform, improve digital tools, and strengthen brand positioning.

Entity or initiative	Replicability	Scalability	Integrated assessment
Hostal Iguana Verde (Malena)	Medium	Medium	A family microenterprise with more than a decade of ecotourism experience, offering accommodation, turtle conservation, and local cuisine. It can be replicated on other beaches with similar natural resources but requires investment in environmentally sustainable infrastructure and online booking systems. Growth potential is moderate; improved facilities, digital booking, and stronger marketing are needed to attract more visitors without exceeding local capacity.
Asociación de Pescadores Artesanales de Salango (ASOSALAN)	Medium	Medium	The model depends on strong community organization, regulatory compliance, and technical fisheries monitoring capacity, as well as close coordination with environmental authorities. Implementation outside its original context requires local adaptation and ongoing support.
ECOFADTORY S.A.S.	High	High	The initiative is based on a product and production processes that can be standardized. Expansion depends primarily on investment, market acceptance, and regulatory stability. The central challenge is to maintain environmental performance and risk management as operations grow.
Asociación de Pescadores Artesanales Cangrejeros y Afines Sabana Grande Nueva Esperanza	Low	Low	The model combines technological innovation and environmental stewardship within an emerging institutional framework with limited administrative and financial capacity. Organizational strengthening is required before any expansion.

4. Lessons Learned and Recommendations

Drawing on documented initiatives, interviews, and a literature review, this report identifies lessons and recommendations to strengthen Blue Economy initiatives in the Central ETP. These conclusions are useful to community organizations, enterprises, public institutions, impact investors, international development partners, and other stakeholders seeking to promote sustainable business models that integrate conservation, local development, and financial sustainability. They also inform the design of future regional Blue Economy support and investment facilities.

The findings support three sets of conclusions:



Lessons from the initiatives analyzed.



Factors that support the development and scaling of Blue Economy initiatives in the Central ETP.



Implications for developing support and investment instruments.



I. Lessons from the Initiatives Analyzed

1. The most successful initiatives add value beyond primary production: Processing products, diversifying services, accessing differentiated markets, and building commercial partnerships strengthen economic sustainability and reduce vulnerability to market volatility.
2. Local governance and strategic partnerships are critical to the long-term viability of initiatives: The cases analyzed show that coordination among community organizations, public institutions, academia, support organizations, and the private sector strengthens enterprises' capacity to adapt, innovate, and scale.
3. Technical assistance is central to advancing the Blue Economy: Its contribution should extend beyond project preparation and continue through implementation and evaluation, supporting organizational strengthening, business capacity building, and access to new markets.
4. Limited access to suitable financial instruments is a major constraint for Blue Economy initiatives in the Central ETP: Financing amounts and terms should match each enterprise's stage of development, with differentiated options enabling a gradual transition from initial capacity building to established business models eligible for commercial credit. Community-based entities and enterprises can thus gradually become "bankable."

5. Evidence-based, standardized data offer a key opportunity to strengthen decision-making. Comparable environmental, social, and economic indicators would facilitate results monitoring, impact evaluation, and the exchange of lessons among Central ETP countries. Establishing robust, science-based baselines is another critical step. A regional facility could support a centralized database of these indicators to guide investment, assess long-term impacts, and share best practices across the region.
6. Developing Blue Economy initiatives requires multistakeholder participatory processes: Jointly defining eligibility criteria and minimum standards strengthens the legitimacy of interventions and supports the sustainability of viable projects in Central ETP countries.
7. Alignment with public policies and national agendas facilitates scaling: Involving public institutions from the outset improves coordination, prevents operational overlap, and helps ensure impact at a larger scale.



II. Factors That Strengthen and Scale Blue Economy Initiatives in the Central ETP

Organizational and Commercial Maturity:

1. An initiative's maturity level dictates its capacity to consolidate and expand: Maturity reflects an enterprise's degree of organization and its capacity to identify opportunities, manage resources, and secure capital to strengthen and expand operations. The cases analyzed show that support needs vary significantly according to each organization's development stage.
2. Enterprise development requires capacity building tailored to stage: The initiatives analyzed primarily require foundational support in governance, formalization, strategic planning, and market access. Technical assistance and financing should be combined to meet each organization's specific needs.
3. Adequate infrastructure serves as an operational catalyst: More mature initiatives generally possess basic functional infrastructure and more established organizational processes, enabling them to add value to products, strengthen value chain integration, and improve competitiveness. Addressing key infrastructure deficits can accelerate the development of promising enterprises.

4. Governance supports sustainable growth: Access to infrastructure, skilled staff, and market opportunities must be underpinned by robust governance, participatory frameworks, and transparent decision-making processes. The cases analyzed demonstrate that organizational scaling is more sustainable when grounded in clear internal policies, shared leadership, and effective conflict resolution mechanisms.
5. Risk management must evolve alongside organizational maturity: Initiatives face distinct risks at each stage of development. Support strategies should thus integrate technical assistance, organizational strengthening, and financial instruments tailored to their specific maturity level. This approach mitigates risk, facilitates progress tracking, and maximizes the likelihood of long-term sustainable impact.

Scale:

1. An initiative's baseline profile shapes its scaling potential: A clear baseline assessment of infrastructure, legal status, regulatory compliance, and management capacity helps identify required support and realistic growth trajectories. Tools such as DOPA provide a structured framework for this assessment.
2. Scalability must be driven by proven market demand: Growth is viable only when markets can absorb increased production or services. Mitigating commercial risk requires analyzing seasonality, assessing demand stability, and securing formal commercial agreements.
3. Replicability requires adapting proven practices to local contexts: Replicating a model involves more than simple direct reproduction; it demands targeted knowledge transfer, capacity building, and quality standards that instill market confidence.
4. Effective scaling integrates capital with technical assistance: Access to capital must be coupled with enhanced administrative management, legal compliance, market access, and income diversification to maximize project viability.
5. Scalability and replicability represent complementary yet distinct growth strategies: Some initiatives can expand operations within their existing footprint, while others achieve broader impact by adapting their model to new geographical or socio-economic contexts. Support mechanisms should account for these distinctions by applying differentiated eligibility criteria and tailored interventions.

¹⁷ Caldas, J. P., Jaramillo, L., & Navia, A. F. (2025). Small-scale fisherfolk organizations: Do current conditions facilitate their effective contribution to the value chain? *Marine Policy*, 171.



III. Implications for Designing Support and Investment Instruments

1. Support must be tailored to organizational maturity: The cases analyzed show that early-stage entities have distinct operational needs compared to those with established operations. Support mechanisms should therefore establish differentiated development pathways combining technical assistance and financial instruments suited to each stage of growth.
2. Technical assistance must serve as an integral, long-term component of investment: Beyond capital deployment, organizational strengthening, business capacity building, market access, and monitoring and evaluation (M&E) require continuous support to enhance project viability and long-term sustainability.
3. Risk management strategies must align with enterprise risk profiles: Blending technical assistance, tailored financial instruments, and structured monitoring frameworks mitigates operational and financial risk while improving impact assessment.
4. Standardized data strengthens strategic decision-making: Comparable performance indicators and science-based regional baselines facilitate impact evaluation, investment prioritization, and knowledge sharing across the ETP region.
5. Multistakeholder coordination maximizes the reach of support mechanisms: Collaboration among community-based organizations, public institutions, environmental funds, international development partners, academia, and the private sector mobilizes capital, aligns complementary financing tools, and scales high-impact initiatives.
6. Regional facilities provide a strategic platform to strengthen the Blue Economy ecosystem: The evidence documented in this report underscores the need for regional platforms that integrate financing, technical assistance, knowledge exchange, and impact monitoring. A dedicated regional Blue Economy facility would help address capital gaps, build local capacity, and accelerate scalable initiatives capable of driving enduring environmental, social, and economic benefits across the Central ETP.



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Glossary

Baseline: An initial set of data describing conditions before a project, program, or intervention is implemented, used as a reference for measuring changes, impacts, and results over time.

Blue Economy: An approach to identifying and promoting marine and coastal economic initiatives that integrate environmental conservation, inclusive social impact, innovation, financial sustainability, and alignment with public policy frameworks and global goals.

Endowment fund: A financing arrangement that manages capital invested on a permanent basis, using its returns to sustainably finance activities, projects, or institutions over time.

Enterprise: A business, cooperative, or community group engaged in sustainable economic activities linked to the ocean and coast.

Facility: A platform integrating technical assistance and financing to advance sustainable marine and coastal initiatives.

Grants: Nonrepayable financial resources provided by a public, private, or development cooperation entity to support specific projects, programs, or activities, with no obligation to repay the funds.

Multilevel governance: Coordination among regional, national, and local institutional levels for joint decision-making and implementation.

Replicability: The potential to transfer a successful model to other locations or communities.

Scalability: An initiative's capacity to increase output or expand its reach within the same context while maintaining performance and sustainability.

Seed capital: Initial financing provided to a venture or project in its earliest stages to validate an idea, develop a prototype, or begin basic operations.

Appendices

Appendix A. Contributors to the Good Practices Assessment in the Blue Economy in the Central ETP

Stakeholder type	Institution/entity	Participant
Colombia		
National fisheries authority	National Aquaculture and Fisheries Authority	Raúl Pardo Boada
Founding Environmental Funds (FEFs)	Fondo Acción	Andrés Cuellar, Juana Camacho
Founding Environmental Funds (FEFs)	Patrimonio Natural	Inés Cavelier
Financial sector	Asobancaria Colombia	José González
Nongovernmental organizations	Fundación Squalus	Andrés Navia
Financial sector	Bancóldex	María Mariquez, Claudia Marcela Gutiérrez Cárdenas
Nongovernmental organizations	Conservation International Colombia	Pilar Herrón
Costa Rica		
National environmental authority	Ministry of Environment and Energy: National System of Protected Areas – Marine and Coastal Program and Cocos Island	Jenny Asch, Gina Cuza
National fisheries authority	Costa Rican Institute of Fisheries and Aquaculture	Ginnete Valerin
Founding Environmental Funds (FEFs)	Asociación Costa Rica por Siempre	Cristina Sánchez
Financial sector	National Bank of Costa Rica	Guillermo Rodríguez, Marcela Lizano
Financial sector	Banco Popular y de Desarrollo Comunal	Gina Carvajal
Nongovernmental organizations	Conservation International Costa Rica	Ana Gloria Guzmán
Nongovernmental organizations	MarViva Costa Rica	Katherine Arroyo

Ecuador		
National environmental authority	Director of Galápagos National Park/Regional Technical Committee of the Eastern Tropical Pacific Marine Corridor	Carlos Ortega, Lorena Sánchez
Financial sector	Galápagos Life Fund	Mónica Calvo Pina, Carolina Astudillo
Nongovernmental organizations	Conservation International Ecuador	Carolina Rosero
Panama		
National environmental authority	Ministry of Environment: National Directorate of Coasts and Seas/Regional Technical Committee of the Eastern Tropical Pacific Marine Corridor	Digna Barsallo
National fisheries authority	Aquatic Resources Authority of Panama	Karla Adames
Founding Environmental Funds (FEFs)	Fundación Natura	Juan Mate
Nongovernmental organizations	MarViva Panama	Vicente del Cid
Regional focus		
Financial sector	Fundación Pacífico	Natalia Arango, Andrea Montero
Regional platform	Eastern Tropical Pacific Marine Corridor (secretariat in Panama)	María Fernanda Cuartas
Nongovernmental organizations	Conservation International	Marco Quesada
Financial sector	Central American Bank for Economic Integration	Ángel Murillo
Financial sector	International Finance Corporation	Mauricio Vélez
Financial sector	World Bank	Kanako Hasegawa, David Maleki
Other facilities		
Financial sector	Fondo Acción	Elizabeth Valenzuela, Paula Giraldo

Appendix B.

National Definitions of the Blue Economy and Related Public Policy Frameworks



Colombia

National definition of the Blue Economy:

The National Ocean and Coastal Areas Policy recognizes the Blue Economy but does not define it. The Sustainable Tourism Policy defines blue tourism as a form of nature-based tourism involving activities, services, products, and experiences focused on enjoying highly biodiverse marine areas, and considers it a fundamental part of the Blue Economy.

Blue Economy framework

- National Ocean and Coastal Areas Policy.
- Sustainable Tourism Policy.
- 2022 Nationally Determined Contribution.



Costa Rica

National definition of the Blue Economy:

Costa Rica has no single official, binding definition of the Blue Economy in a public policy document. However, the concept has gradually gained recognition and been implicitly adopted through sectoral planning documents and the work of institutions, NGOs, and financial entities.

Blue Economy framework

- National Ocean Policy 2013–2028.
- National Fisheries and Aquaculture Plan 2025–2030.
- National Tourism Plan 2022–2027.
- 2020 Nationally Determined Contribution.
- National Blue Carbon Strategy.



Ecuador

National definition of the Blue Economy:

Ecuador has no official national definition of the Blue Economy. However, the Galápagos Blue Economy Strategic Plan states that the Blue Economy provides an ideal framework for balancing growth in ocean-based sectors with conservation of the natural capital that supports them.

Blue Economy framework

- Galápagos Blue Economy Strategic Plan 2025–2040.



Panama

National definition of the Blue Economy:

Panama has no official definition of the Blue Economy. However, the National Ocean Policy states that, within the ocean economy framework, the Blue Economy refers to the sustainable use of marine and coastal resources. In the assessment undertaken, sustainability means approaching marine and coastal activities through a balance among the social, economic, and environmental dimensions, necessarily incorporating an ecosystem approach. The policy established the concept at the national level.

Blue Economy framework

- National Ocean Policy.



Appendix C. Criteria Used to Characterize the Identified Initiatives

Parameter	Description	Assessment indicators
i) Operating/ business model	Distinguishes businesses from organizations. A business may be micro (≤ 10 people, no formal management structure, sales $\leq$ USD 50,000/year) or small (10–50 people, sales up to approximately USD 300,000/year), with a basic management structure and stable customers. Organizations may be producer/fisher associations or civil society organizations (CSOs). Their activities—fish marketing, accommodation, tours, or restaurants—and degree of vertical integration are described.	Entity type (business or organization); size (micro/small); number of members; principal activity (fish collection and processing, cultural tours, restaurant services, accommodation); degree of vertical integration.
ii) Business profile and maturity	Assesses operational and commercial experience: years in operation, production control, customer segmentation, formalization, market access, and capacity to scale and negotiate prices.	Years in operation; product/service diversification; legal formalization (sanitary permits, business registration, certification); marketing channels; reputation (for example, Tripadvisor reviews); organizational partnerships.
iii) Administrative capacity and infrastructure	Assesses facilities (processing plant, warehouse, accommodation), equipment (boats, engines, cold rooms), trained personnel, accounting records, and traceability systems.	Facilities (plant, restaurant, guesthouse); basic equipment (cold-chain systems, boats); paid personnel; purchase/sales records; accounting systems or electronic invoicing.

Parameter	Description	Assessment indicators
iv) Support requirement categories	Determines the effort the facility must invest in strengthening the organization: high (early-stage idea, informal operations, no legal registration); medium (operating, but lacking accounting or marketing procedures); low (established business experience, requiring capital to scale).	Degree of informality; capacity-building needs (administration, marketing, quality, infrastructure); scaling potential.
v) Financing ranges	Estimates the investment needed for an organization to become “bankable.” For early-stage microenterprises, USD 5,000–50,000 enables formalization and equipment purchases. Established small businesses require USD 50,000–200,000 to optimize processes and scale sales.	Amounts by maturity: early-stage microenterprises (<USD 10,000); established microenterprises (USD 10,000–50,000); small businesses (USD 50,000–200,000).
vi) Risk management	Assesses business risks (dependence on catches, tourism seasonality, weak infrastructure) and investment risks (lack of formalization, legal uncertainty, climate). It considers five “nonnegotiable” indicators used by CI in Colombia ¹⁸ : minimum infrastructure, artisanal fishing vessels, legal personality, regulatory compliance, and independence from intermediaries.	Risk level: high (missing permits, inadequate infrastructure, dependence on intermediaries); medium (meets basic requirements but has no credit history); low (formal business with accounting systems and commercial partners).
vii) Gender considerations	Analyzes women's participation and internal policies to promote their leadership.	Percentage of women participants; leadership roles; training and employment plans for women; pay equity.
viii) Good practices and innovations	Identifies environmental sustainability practices (selective fishing gear, traceability, certification), business innovation (educational tours, cuisine based on mangrove products, food festivals), and community responsibility.	Adoption of selective or sustainable fishing gear; voluntary certification; inclusion of cultural experiences in tourism; technology for sales and marketing; commitments to the community and environment.

¹⁸ Caldas, J. P., Jaramillo, L., & Navia, A. F. (2025). Small-scale fisherfolk organizations: Do current conditions facilitate their effective contribution to the value chain? *Marine Policy*, 171.

Appendix D. Parameters Used to Assess the Scalability and Replicability of the Reviewed Initiatives

Table D1
Scalability indicators

Scalability level	Proposed indicators	Description
High	- Strong, growing market demand. - Adequate infrastructure and logistics (energy, cold chain, transport). - Established organizational capacity (accounting, legal compliance). - Access to financing and working capital.	Organizations can increase output or beneficiary numbers without encountering bottlenecks. The model can grow within the same territory because markets can absorb production and technical and financial resources are available to sustain expansion.
Medium	- Moderate or seasonal local demand. - Partial infrastructure; basic but limited collection centers. - Developing organizational capacity (basic accounting, some formalization). - Financing limited to donations or small loans.	Growth is possible but requires investment in infrastructure, professionalization, and market strategies. Expansion may encounter logistical constraints and requires facility support to consolidate operations.
Low	- Low or uncertain market demand. - Lack of basic infrastructure (no energy supply or cold chain). - No accounting systems or up-to-date legal status. - High dependence on intermediaries and no formal financing.	Expansion within the same territory is difficult. Without enabling conditions—legal compliance, infrastructure, and traceability—any increase in production or beneficiary numbers would threaten project sustainability. This is illustrated by most fishing organizations in Colombia's Pacific region, which lack collection centers and accounting systems.

Table D2
 Replicability indicators

Replicability level	Proposed indicators	Description
High	· A model based on standardized, readily transferable good practices (for example, responsible fishing guidelines and traceability procedures). · Common infrastructure and logistics requirements that can be met in multiple locations. · Broad market demand (restaurants, exporters, or public procurement) capable of absorbing production. · Organizational assessment and selection methodologies, such as DOPA, to guide adoption.	The model can be replicated in other communities with minor adjustments. Support is needed to meet the “nonnegotiable” conditions—infrastructure, legal status, and regulatory compliance—but it does not depend on unique factors.
Medium	· An adaptable model requiring significant investment in infrastructure or training. · Logistical or market constraints on immediate replication (for example, distance to markets or the need for air transport). · Moderate local or regional demand, with potential to grow through specific partnerships.	Replication is possible, but each new location will need a feasibility analysis and basic infrastructure. Red de Frío Bahía Solano demonstrates that even a successful model requires solutions to air transport bottlenecks and market demand constraints before replication.
Low	· A model highly dependent on unique conditions (a privileged location or exclusive commercial relationships). · Highly complex logistics or high implementation costs. · Very limited or saturated market demand.	Difficult to replicate in other settings. Even if technical barriers are overcome, insufficient demand or exclusive customer relationships constrain adoption.

Appendix E.

The Wok–Bahía Solano Case Study: Enabling Conditions for Responsible Value Chain Linkages in Fisheries

The Wok–Bahía Solano case offers insights into the conditions needed to connect responsible artisanal fisheries with differentiated markets. Mentioned by several stakeholders interviewed in Colombia, it involves the Wok restaurant chain purchasing fish directly from a local organization in Colombia's Pacific region. Its value lies not only in opening a commercial channel but also in demonstrating that responsible value chain linkages require more than purchasing intent or good fishing practices: they need a minimum foundation of organization, infrastructure, clear rules, and trust among value chain actors.

The experience combined three key elements:



Adoption of responsible fishing practices, including selective gear and compliance with size limits and closed seasons.



Reduced reliance on intermediaries through clearer purchasing rules, which stabilized incomes and improved relationships between fishers and buyers.



Product traceability, independent verification, restaurant staff training, and consumer awareness.

Together, these elements transformed local good practices into commercial trust.

However, the case also shows that a successful initiative cannot be assumed to be readily replicable without enabling conditions.

Structural barriers persist in many fishing areas: limited information on catches and markets, difficulties maintaining accounting records, limited invoicing capacity, organizational weaknesses, inadequate infrastructure, missing cold chains, dependence on intermediaries, and logistical barriers to urban markets. In remote settings, supplying equipment or funding isolated investments is rarely sufficient without energy, security, maintenance, management capacities, and a commercial strategy that completes the value chain.

The principal lesson is therefore that any capacity-building initiative must begin with a realistic assessment of its starting point. Tools such as DOPA help structure this assessment by identifying minimum or “nonnegotiable” conditions: basic infrastructure, fishing units, legal status, regulatory compliance, and reduced dependence on intermediaries. These elements are critical because

without them, it is difficult to ensure quality, legality, consistent supply, and the actual capacity to fulfill commercial agreements¹⁹.

DOPA's value thus lies not in the methodology as an end in itself but in its ability to prevent unrealistic expectations. It distinguishes organizations ready to join value chains from those that could do so with support and those that first need to address basic gaps. This assessment is especially important for investors, development partners, and support programs because it identifies the appropriate intervention: capacity building, infrastructure improvements, reduced dependence on intermediaries, better internal management, improved traceability, or progression toward more demanding commercial agreements.

The Wok–Bahía Solano case confirms that responsible value chain linkages can improve incomes, strengthen sustainable practices, and create fairer commercial relationships. It also shows that scaling these initiatives requires technical support, independent verification, enabling infrastructure, clear internal rules, and market diversification.

For new artisanal fishing and Blue Economy enterprises, the main lesson is that commercial sustainability rests not only on the final product but on the conditions that enable production, preservation, recordkeeping, transport, sales, and lasting relationships of trust.

¹⁹ Caldas, J. P., Jaramillo, L., & Navia, A. F. (2025). Small-scale fisherfolk organizations: Do current conditions facilitate their effective contribution to the value chain? *Marine Policy*, 171.

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