



The background of the poster features a dense, swirling school of fish, likely tuna, swimming in a deep blue ocean. The fish are silvery-blue with dark fins and are shown from various angles, creating a sense of movement and depth.

# INVESTING FOR **SUSTAINABLE GLOBAL FISHERIES**

With support from:  
Bloomberg Philanthropies'  
Vibrant Oceans Initiative  
The Rockefeller Foundation



## **Executive Summary**

### **Introduction**

#### **Small-Scale Fisheries Investment Blueprints**

The Mariscos Strategy

The Mangue Strategy

The Isda Strategy

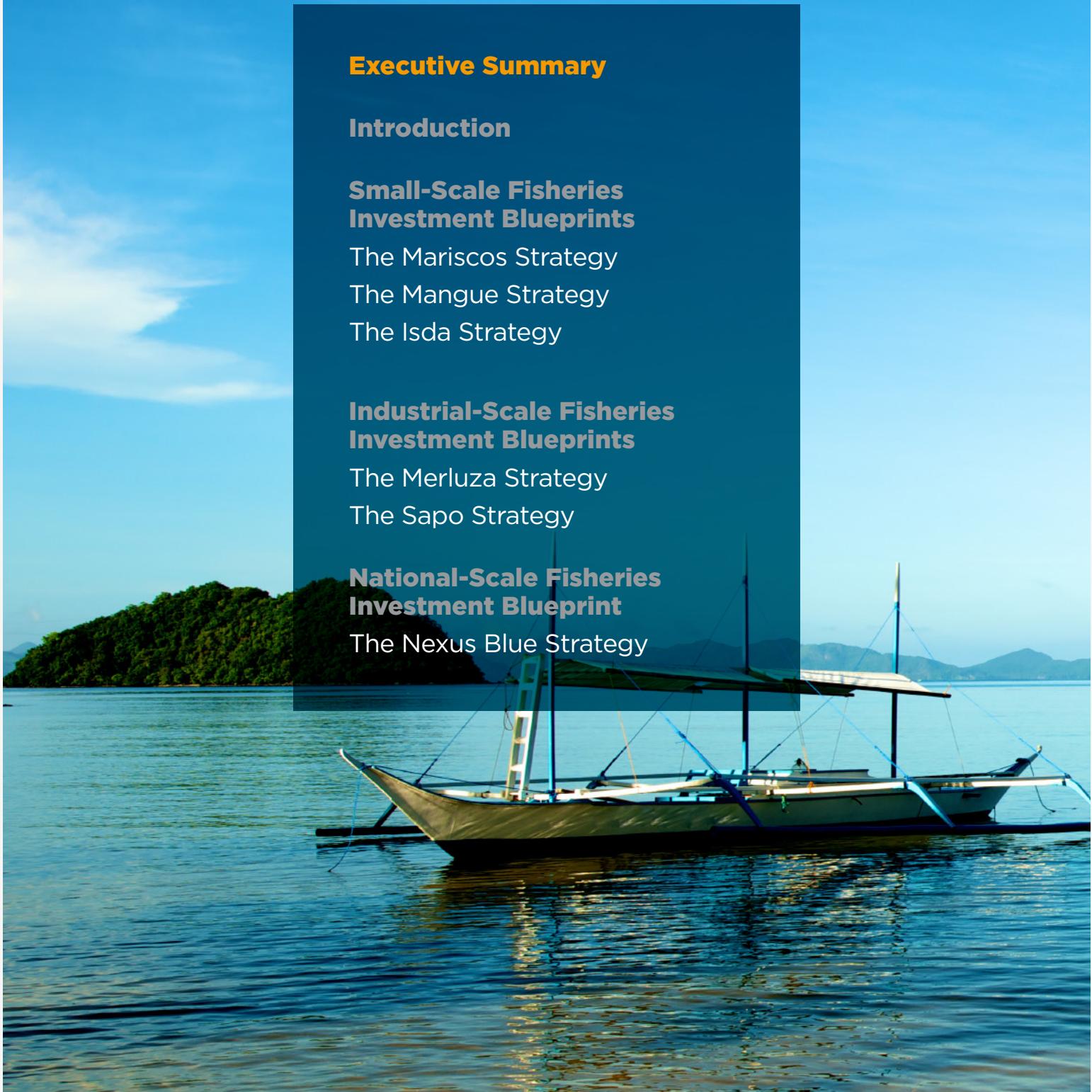
#### **Industrial-Scale Fisheries Investment Blueprints**

The Merluza Strategy

The Sapo Strategy

#### **National-Scale Fisheries Investment Blueprint**

The Nexus Blue Strategy



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# EXECUTIVE **SUMMARY**

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**INVESTING FOR  
SUSTAINABLE  
GLOBAL FISHERIES**

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## INTRODUCTION

The earth's oceans have been a source of sustenance and wonder to humankind since the dawn of time, supporting coastal populations for millennia and perhaps even playing a role in human evolutionary development.<sup>1,2</sup> To this day, our reliance on marine resources remains profound. Seafood currently provides 17% of daily animal protein consumed globally, yet fish stocks worldwide are imperiled, threatening marine ecosystems, global food security, and the economic livelihoods of millions of fishers. In fact, only 8.5% of global landings are in fisheries certified as sustainable,<sup>3</sup> while 40% of fisheries are considered to be overexploited or collapsed.<sup>4</sup> Impact investors can play a role in saving these fisheries.

Research suggests that impact-focused investors have approximately \$5.6 billion<sup>5</sup> in capital to deploy over the next five years and have the means to dramatically reshape the world's "blue economy." To better channel the flow of this capital to the need and opportunity of restoring global fisheries, Bloomberg Philanthropies' Vibrant Oceans Initiative and The Rockefeller Foundation supported Encourage Capital (Encourage) to undertake research and publish this report, *Investing for Sustainable Global Fisheries*, which includes six Investment Blueprints, each intended to serve as a roadmap for the growing number of investors, entrepreneurs, and fishery stakeholders seeking to attract and deploy private capital to scale and accelerate fisheries reform. Bloomberg Philanthropies' Vibrant Oceans Initiative simultaneously funded Oceana and Rare to implement policy and community stewardship programs, respectively, in Chile, Brazil, and the Philippines as part of a strategy to simultaneously reform industrial and small-scale fisheries and attract capital to catalyze and sustain these efforts. Encourage Capital's Investment Blueprints are designed to create a roadmap for private capital to further accelerate and scale success in each Vibrant Oceans country.

This publication is an Executive Summary of *Investing for Sustainable Global Fisheries*. This summary provides a brief overview of the work that was undertaken, a description of each Investment Blueprint, and some of the critical findings from the work. At the heart of each Investment Blueprint lies a proposed set of fishery management improvements and profitable investments that seek to have positive ecological and social impacts. On the ecological side, the goals are to maintain or restore fish stocks, reduce bycatch of non-target species, and protect and restore marine habitat. On the social side, the goals are to improve fisher livelihoods, empower local communities, and contribute to local and regional food security. We hope that this summary — and, the full report — offer practical and useful strategies for all stakeholders in the blue economy, including investors, entrepreneurs, NGOs, governments, and fishers. If these strategies prove successful in delivering financial and impact returns, we believe they could unlock larger pools of private capital for marine conservation to protect marine fisheries as a source of food, income, and inspiration for generations to come.

<sup>1</sup> Verhaegen, M., P. F. Puech, and S. Munro, 2002. "Aquarboreal Ancestors?" *Trends in Ecology and Evolution* 17:212-17.

<sup>2</sup> Hardy, A., 1960, "Was Man More Aquatic in the Past?", *New Scientist* 7:642-45.

<sup>3</sup> Marine Stewardship Council Certification, mscglobalservices.com, 2015.

<sup>4</sup> Pauly et al., "What Catch Data Can Tell Us About the Status of Global Fishery," *Sea Around Us Project*, 2012.

<sup>5</sup> Encourage Capital and The Nature Conservancy, NatureVest Division, "Investing in Conservation," November 2014.



## FINANCIAL RETURNS AND IMPACTS

### FINANCIAL RETURNS

Our work shows that impact investors in the fisheries sector have a real opportunity to realize potentially attractive financial returns as well as social and environmental impacts. The Investment Blueprints show that impact-oriented business models benefiting from stock stabilization or restoration have the potential to generate equity returns between 5% and 35%, using conservative growth and exit assumptions. These returns are driven primarily by increased volumes linked to stock recoveries, improvements in supply chain efficiency, access to higher-value markets, and reductions in raw material supply volatility.

### IMPACTS

In each of the six Investment Blueprints, we propose to bundle investments in seafood companies and fishery assets with complementary investments that improve fishery management. In combination, the investments are aimed at generating positive environmental, social, and food security impacts.

### ENVIRONMENTAL OUTCOMES: PROTECT AND RESTORE FISH STOCKS

The central impact objective of the Investment Blueprints is to protect and restore wild-caught marine fisheries, which in turn support fishing livelihoods and supply meals to millions of people around the world. Depending on the fishery, the Investment Blueprints propose to do the following:

- Increase the estimated biomass of severely distressed stocks.
- Prevent further declines in and/or increase the biomass of stocks facing moderate distress.
- Reduce bycatch of non-target species or juvenile age cohorts of target stocks.
- Where possible and relevant, protect and restore critical marine habitat such as mangroves and coral reefs.



While the fishery management improvements proposed throughout the Investment Blueprints are ultimately expected to protect marine biodiversity across a wide range of ecosystems, we do not attempt to quantify those impacts. Monitoring of biodiversity levels could be further explored by investors seeking to explicitly achieve that impact objective.

#### SOCIAL OUTCOMES: SUPPORT FISHING LIVELIHOODS

The Investment Blueprints also target several impact objectives associated with fisher livelihoods and fishing community well-being. Depending on the fishery, the Investment Blueprints show the potential to do the following:

- Increase the aggregate income of fishers and fishing communities.
- Improve fishing community resilience.
- Empower fishing communities and fishers.

#### FOOD SECURITY OUTCOMES: FEED MORE PEOPLE

Each Investment Blueprint also targets the production of additional meals for local and regional

consumption or for export to international markets. Increased meal production can be generated by (a) projected increases in landings volumes (only expressed when in connection with stock biomass improvements of the target stock, and subject to the constraints of scientifically determined Total Allowable Catch limits); (b) increases in the utilization of previously discarded bycatch; and (c) reductions in supply chain spoilage. Based on the projected increases to final product volumes resulting from these drivers, the Investment Blueprints convert this additional volume to additional seafood meals to market, taking into consideration the processing yield of the particular species after removal of nonedible parts.<sup>6</sup>

Based on the relevant impact objectives for the specific fishery and fishing communities, Encourage Capital's Investment Blueprints establish quantifiable base-case impact targets for each of the primary environmental and social impact objectives. While the field of impact measurement is still evolving and impact outcomes can be difficult to measure, we propose the base case impact targets both as a means to build accountability into the Investment Blueprints and as a tool to promote continuous improvements in the proposed strategies over time.

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<sup>6</sup> Assumes portions of 200 grams.



## THE SUSTAINABLE FISHERIES IMPACT INVESTMENT CONTEXT

The financial performance and overall impact of any sustainable seafood investment will be affected by the broader trends in raw material supply, demand, and prices, as well as by the competitive dynamics of the seafood supply chain.

### SUPPLY AND DEMAND

Over 1 billion people globally rely on seafood as their primary source of protein, with another 4.3 billion utilizing seafood for at least 15% of their animal protein consumption.<sup>7</sup> Over the next 35 years, food security economists project that seafood supplies for human consumption will need to increase by 70%, driven by population growth and economic development.<sup>8</sup>

However, scientists estimate that almost 40% of fisheries are overexploited or collapsed, with the remainder under threat as seafood demand increases over time.<sup>9</sup> Stock declines are primarily driven by the overfishing of the resource beyond its ability to replenish itself; however, the impacts of climate change, habitat destruction, and pollution are also taking a toll. In fisheries where access rights are not well defined, the “tragedy of the commons” phenomenon tends to play out, driving short-term extraction at the cost of long-term yield. This is especially true in developing countries where access rights are poorly defined and little to no monitoring or enforcement of fishing regulations occurs.

The projected growth in demand for seafood products, as set against the downward trend in marine landings, has generated strong price growth for seafood products globally of approximately 38% since 2002. Economists estimate that prices will continue to rise an additional 25% by the year 2022, relative to 2014 prices.<sup>10</sup> While prices for individual species can be volatile, we believe the overall price strength in global seafood markets can support sustainable seafood investing strategies over the long term.

<sup>7</sup> Food and Agriculture Organization of the United Nations, “The State of World Fishery and Aquaculture,” Rome, 2014.

<sup>8</sup> “Sustainable Fishery Financing Strategies,” EKO Asset Management Partners, March 2014.

<sup>9</sup> Daniel Pauly, “What Catch Data Can Tell Us About the Status of Global Fisheries,” Marine Biology 159, 2012.

<sup>10</sup> Food and Agriculture Organization of the United Nations, “The State of World Fisheries and Aquaculture,” Rome, 2014.

## SUPPLY CHAIN FACTORS

The seafood industry is extremely diverse, involving hundreds of species, each with its own unique biological, ecological, and commercial characteristics. Fishers and fishing fleets often lack high-quality commercialization infrastructure, especially in developing countries, where many fishers still land their catch on the beach with no ice or cold storage capacity to preserve product quality and increase shelf life. The high degree of perishability of the product and lack of access to markets often makes fishers “price takers,” vulnerable to manipulation and

the usurious practices of intermediaries, with price markups from dockside to table as high as 1,000%. Spoilage and waste can be as high as 50% in some small-scale fisheries before the product even reaches retail outlets. While these market conditions pose challenges to fishers, we believe they also present opportunities for investors to add significant value to ocean harvests by investing in businesses that both maximize the value of landed-catch volumes and benefit from the tailwinds of rising demand and prices.

## THE OPPORTUNITY TO BE FOUND IN FISHERY RESTORATION

We believe that overall economic value creation associated with fisheries reform is compelling. A recent study conducted by the University of California Santa Barbara’s Sustainable Fisheries Group concluded that the restoration of distressed fisheries globally could increase global fish stocks by 36%, boost seafood production by an additional 12 million metric tons (mt) — or 14% of current wild capture production — and generate an additional \$51 billion in aggregate profits within 10 years.<sup>11</sup>

The global restoration potential offers an ample “seascape” of investment opportunities for impact investors, especially if management and governance improvements are linked with business models that profit from stable or improving stock health.<sup>12</sup> The restoration of the now healthy Northern Cod Stock is as example of the impact that a far-sighted fisheries management strategy can have on the recovery of a fishery.

We believe that overall economic value creation associated with fisheries reform is compelling.

<sup>11</sup> Costello, Hillborn, et al., “Ocean Prosperity Roadmap: Fishery and Beyond,” Synthesis Report, 2015.

<sup>12</sup> Costello, Hillborn, et al., “Ocean Prosperity Roadmap: Fishery and Beyond,” Synthesis Report, 2015.



## METHODOLOGY

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Taking into account the larger market context for sustainable seafood investment and the factors described above, we considered how best to achieve the targeted impact objectives, including the aims to protect and restore fish stocks, support fisher livelihoods, and feed more people, all while delivering attractive financial returns. Building on the investment theses presented in Encourage Capital's (then EKO Asset Management Partners) 2013 white paper titled *Sustainable Fishing Financing Strategies*, we first identified three distinct fishery typologies: (a) small-scale fisheries, focused on improving management of moderately distressed nearshore fish stocks landed by community-based, artisanal fishers using small vessels and a range of gear types; (b) industrial-scale fisheries, focused on improving management of severely distressed fish stocks landed by both artisanal and industrial fishers using a wide range of vessels and gear types; and (c) national-scale fisheries, focused on improving national-scale fisheries management.

We then developed six investment strategies — the Investment Blueprints — based on real case studies. Each of the six Investment Blueprints outlines a unique investing strategy for a specific fishery or set of fisheries intended to serve as a roadmap for the growing number of investors, entrepreneurs, and fishery stakeholders who are seeking to attract and deploy private capital both to scale and to accelerate fisheries reform.

Although the Investment Blueprints showcase hypothetical investment opportunities, they are based on real fisheries, companies, and challenges, and incorporate data and financial information uncovered during our research. We identified companies that displayed the attributes that we believed might make them promising investment opportunities for impact investors and/or other stakeholders. Upon identifying any such company during our research, we conducted additional due diligence. If upon further analysis we saw a compelling impact investment opportunity that effectively addressed the challenges of a given fishery, we developed an Investment Blueprint based, in part, on the company. However, to protect the identity and the sensitive financial information shared with us by these companies, we sought to anonymize the information by developing different yet illustrative financials reflecting the material dynamics of the underlying company. Accordingly, while our Investment Blueprints display some amended company financials, we believe that they nonetheless materially reflect the nature of real investment opportunities.

We developed the Investment Blueprints using a 10-step process, engaging in dialogue with a wide range of fishery stakeholders, advisors, and consultants, to develop and evaluate the challenges, opportunities, and risks profiled within each Investment Blueprint. For the impact investment strategy to be viable, Encourage Capital needed to determine, through the 10-step review process, whether the potential cash flow

generated by investments in fishing assets and seafood companies could generate a financial return sufficient to attract the capital necessary to implement comprehensive management improvements in the fishery. Figure 1 describes each step and the key questions we sought to answer in shaping and evaluating the investment opportunities that are the foundation of each Investment Blueprint.

FIGURE 1: 10-Step Blueprint Development Process—Key Questions

<b>1. Select Fishery and Species</b>	<ul style="list-style-type: none"> <li>• Is there commercial market demand for the species?</li> <li>• Does the fishery currently or will it potentially produce sufficient volume to generate commercial value?</li> <li>• Is the fishery in proximity to commercial markets or appropriate transport infrastructure to reach commercial markets?</li> </ul>
<b>2. Survey Fishery Conditions</b>	<ul style="list-style-type: none"> <li>• What is the estimated level of distress and depletion in the fishery?</li> <li>• What types of management improvements are required?</li> <li>• How large is the fishing fleet? Is it feasible to implement sustainable fishing practices sufficient to incorporate the minimum threshold necessary to affect the entirety of the stock and support stock restoration?</li> </ul>
<b>3. Profile Fishing Operators, Community, and History</b>	<ul style="list-style-type: none"> <li>• Which industrial fishing companies are active in the fishery? How consolidated is the existing industrial fishing fleet?</li> <li>• Is there existing organization, leadership, or local governance among fishers in the fishery?</li> <li>• What is the history of the industry and fishers' relationship with fisheries authorities and with each other?</li> <li>• Is the industry and/or are fishers in the given fishery interested in transitioning to sustainable fishing practices?</li> </ul>
<b>4. Evaluate Regulatory Framework</b>	<ul style="list-style-type: none"> <li>• How robust is the current regulatory framework?</li> <li>• Are there any regulatory tools that enable fishers and investors to gain tenure over the fishing resource (e.g., limited access fishing permits, Territorial Use Rights for Fishing or TURFs, Individual Transferable Quotas or ITQs, etc.)?</li> <li>• Are fisheries authorities willing to collaborate with private partners to implement fishery management improvements?</li> </ul>
<b>5. Design Fishery Management Improvements</b>	<ul style="list-style-type: none"> <li>• What management interventions are required to protect or restore the fishery?</li> <li>• Can project developers design a clear, viable plan to implement comprehensive fishery management improvements?</li> <li>• Are there effective implementation partners that can be engaged in the project?</li> <li>• What are the costs of the management improvements, and do the financial benefits earned by investors outweigh the costs of the improvements?</li> </ul>



FIGURE 1: 10-Step Blueprint Development Process—Key Questions *continued*

<b>6. Develop Business Plan</b>	<ul style="list-style-type: none"><li>• Which seafood businesses or assets can generate cash flow or long-term asset value with improved fishery management?</li><li>• Are there existing mission-aligned companies or social entrepreneurs capable of executing a viable business plan?</li><li>• Are clear value drivers present to support a commercial business model, such as stock recovery, product certification, spoilage reduction, supply chain upgrades to increase efficiency, higher value markets, or disintermediation?</li></ul>
<b>7. Quantify Fishery Restoration Potential</b>	<ul style="list-style-type: none"><li>• What do scientific models suggest is the potential range of biomass recovery in the fishery and what is its likelihood based on the species' life cycle, fecundity, current biomass, fishing and natural mortality rates, and the proposed suite of management interventions?</li><li>• What timelines for recovery do the models suggest?</li></ul>
<b>8. Develop Financial Models and Scenarios</b>	<ul style="list-style-type: none"><li>• Does the combined cost of fishery management improvements and commercial investment generate sufficient cash flow to reward fishers and repay investors?</li><li>• What are the upside and downside cases of potential impact and financial performance?</li></ul>
<b>9. Overlay Capital and Ownership Structures</b>	<ul style="list-style-type: none"><li>• Based on the cash flow projections, how should the strategy be capitalized? With equity? With debt?</li><li>• Are philanthropic capital or forms of credit enhancement required to generate sufficient returns to attract private capital?</li></ul>
<b>10. Stress-Test Models and Evaluate Risks</b>	<ul style="list-style-type: none"><li>• What are the primary risks that could impair the strategy's success?</li><li>• Can those factors be mitigated through structuring decisions or other means?</li></ul>

We developed the Investment Blueprints using a 10-step process, engaging in dialogue with a wide range of fishery stakeholders, advisors, and consultants, to develop and evaluate the challenges, opportunities, and risks profiled within each Investment Blueprint.



## INVESTMENT BLUEPRINTS

The Investment Blueprints present what we believe are compelling investment strategies based on specific fisheries in Brazil, Chile, and the Philippines,<sup>13</sup> covering more than 30 species. By analyzing these fisheries and their productivity (particularly current versus potential), ecology, management context, and supply-chain dynamics, we were able to design and structure investment strategies that incorporate real-world risks and return potential. We believe that the Investment Blueprints offer viable models that can be replicated across a wide array of fisheries and geographies, mobilizing private capital to protect and restore the oceans' bounty. The Investment Blueprints are crafted to engage the interest of impact investors by describing how sustainable fisheries investments can generate attractive financial returns while simultaneously achieving critical environmental and social impact goals, which are described in more detail in the full report.

We developed a total of six Investment Blueprints across the three typologies:

### Small-Scale Fisheries

- The Mariscos Strategy
- The Mangue Strategy
- The Isda Strategy

### Industrial-Scale Fisheries

- The Merluza Strategy
- The Sapo Strategy

### National-Scale Fisheries

- The Nexus Blue Strategy

What follows is a brief description of the three strategy typologies and the specific Investment Blueprints associated with each.

We believe that the Investment Blueprints offer viable models that can be replicated across a wide array of fisheries and geographies, mobilizing private capital to protect and restore the oceans' bounty.

<sup>13</sup> The three countries were chosen based on a combination of factors that are detailed in the full report.



## SMALL-SCALE FISHERIES INVESTMENT BLUEPRINTS

The term “small-scale fishery” typically refers to any fishery in which fishers operate independent of larger corporations, using vessels ranging up to 18 meters (m) in length. In developing countries, small-scale fishers, sometimes called “artisanal fishers,” generally fish within 5–10 kilometers (km) of shore and rarely stay out at sea for more than one to three days at a time. The Food and Agriculture Organization of the United Nations (FAO) estimates that 50% of global landings are generated by small-scale fishers,<sup>14</sup> and that 90% of the total 30 million estimated fishers globally are small-scale.<sup>15</sup>

The small-scale fisheries Investment Blueprints focus on implementing management improvements across a portfolio of community-based, nearshore fisheries, which, in aggregate, enable production at sufficient scale to support the sourcing needs of a mission-aligned small to medium-size processing and distribution company. In addition to funding the design and implementation of tailored fishery management improvements, investments would upgrade supply chain infrastructure and operations in an effort to maximize catch value per unit volume. In doing so, the strategies seek to differentiate and improve small-scale fishery products that are currently sold as low-value commodities. The viability of the investment thesis and associated cash flow growth here is independent of premium pricing associated with sustainable certification, though this could present additional upside potential if realized. The resulting economic benefits could, in turn, be shared with fishers to reward compliance with sustainable fishing practices.

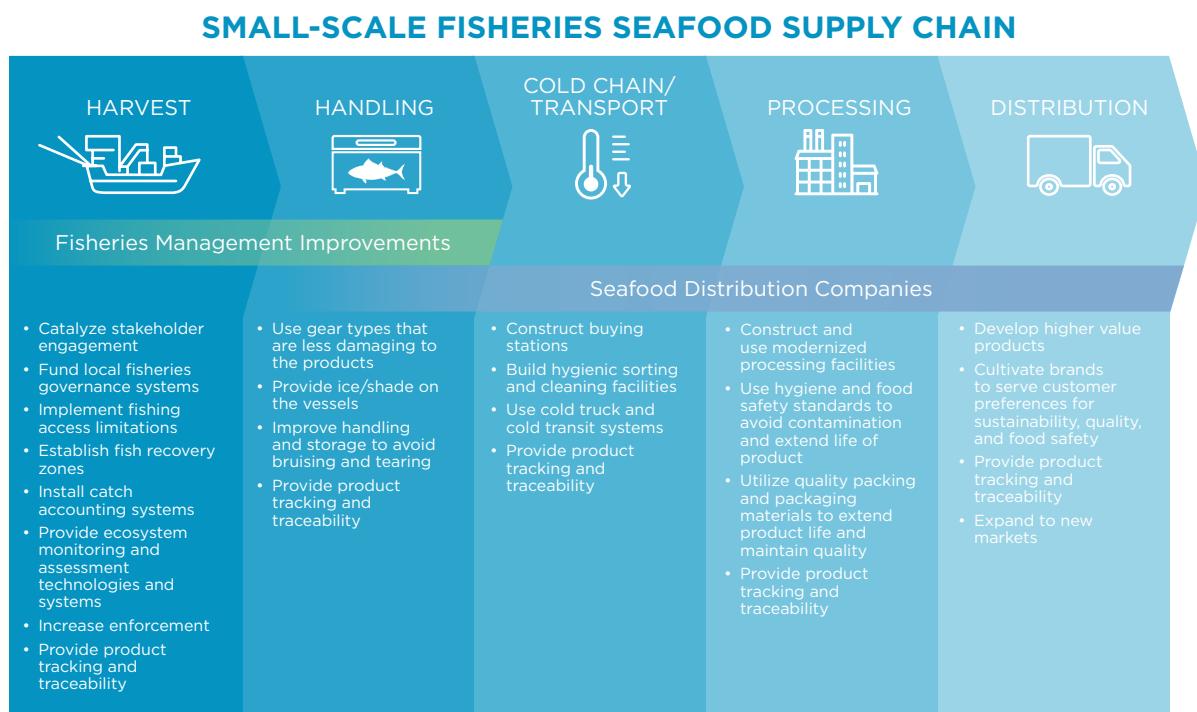
<sup>14</sup> The FAO defines small-scale fishers as “involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption.”

<sup>15</sup> Food and Agriculture Organization of the United Nations, “The State of World Fishery and Aquaculture,” Rome, 2014.

Figure 2 highlights examples of bundled investments relevant to the small-scale strategy, which would vary according to the fishery. While the specifics of each blueprint differ, the fundamental thesis behind all the small-scale fishery investment strategies is the vertical integration of diffuse, inefficient supply chains in order to improve efficiencies and generate higher product values.

Encourage Capital developed three Investment Blueprints to demonstrate how the small-scale fisheries strategies could work to generate both financial and impact returns. Encourage engaged with its partners and advisors to develop and evaluate the challenges, opportunities, and risks associated with each Investment Blueprint.

FIGURE 2: Small-Scale Fishery Seafood Supply Chain



The small-scale fisheries Investment Blueprints focus on implementing management improvements across a portfolio of community-based, nearshore fisheries, which, in aggregate, enable production at sufficient scale to support the sourcing needs of a mission-aligned small to medium-size processing and distribution company.



Figure 3 provides a profile of the three small-scale Investment Blueprints in Chile, Brazil, and the Philippines:

**FIGURE 3: Small-Scale Fisheries Investment Blueprint Summaries**

	THE MARISCOS STRATEGY	THE MANGUE STRATEGY	THE ISDA STRATEGY
Country	Chile	Brazil	The Philippines
Proposed Investment Amount <sup>16</sup>	\$7.0 million	\$15.0 million	\$11.7 million
Investment Term	5 Years	9 Years	10 Years
Fishery/Species Focus	Multispecies, benthic focus on razor clams, scallops, stone crab, king crab, nylon shrimp, abalone, and mussels	Mangrove crab	At least 20 species, including tuna, mahi mahi, snapper, trevally, mackerel, lobster, octopus, squid, crab, and sea urchin
Core Investments	<ul style="list-style-type: none"> <li>• Fishery management improvements</li> <li>• Seafood company</li> </ul>	<ul style="list-style-type: none"> <li>• Fishery management improvements</li> <li>• Seafood company</li> </ul>	<ul style="list-style-type: none"> <li>• Fishery management improvements</li> <li>• Seafood company</li> </ul>
Number of Fishing Communities Incorporated	7	98	40 initially, up to 80
Number of Fishers Engaged	550	1,300	19,000
Targeted Impact Returns: Protecting and Restoring Fish Stocks	<ul style="list-style-type: none"> <li>• Protect existing biomass from overfishing with potential upside increase of 10%</li> </ul>	<ul style="list-style-type: none"> <li>• Protect existing biomass from overfishing with potential upside increase of 10%</li> </ul>	<ul style="list-style-type: none"> <li>• Protect existing biomass from overfishing with potential upside increase of 20%</li> </ul>
Targeted Impact Returns: Supporting Fishing Livelihoods	<ul style="list-style-type: none"> <li>• Pay a premium of 25% to market prices for raw materials sourced, increasing aggregate fisher income by \$1.8 million<sup>17</sup> over the investment period</li> <li>• Establish and fund a Fishing Community Trust</li> <li>• Empower fishing communities as long-term commercial partners</li> </ul>	<ul style="list-style-type: none"> <li>• Pay a premium of 33% to market prices for raw materials sourced, increasing aggregate fisher income by \$1.2 million<sup>18</sup> over the investment period</li> <li>• Establish and fund a Fishing Community Trust</li> <li>• Empower fishing communities as long-term commercial partners</li> </ul>	<ul style="list-style-type: none"> <li>• Pay a premium of 15% to market prices for raw materials sourced, increasing aggregate fisher income by \$11.9 million<sup>19</sup> over the investment period</li> <li>• Establish and fund a Fishing Community Trust</li> <li>• Empower fishing communities as long-term commercial partners</li> </ul>

<sup>16</sup> Total investment amount, including debt, equity, PRI, and grant capital. Presented in USD.

<sup>17</sup> In constant 2015 dollars.

<sup>18</sup> In constant 2015 dollars.

<sup>19</sup> In constant 2015 dollars.

FIGURE 3: Small-Scale Fisheries Investment Blueprint Summaries *continued*

Targeted Impact Returns: Feeding More People	<ul style="list-style-type: none"> <li>Safeguards the supply of 5 million seafood meals annually</li> <li>Increases meals to market through 13.5% reduction in spoilage, delivering an additional 150,000 seafood meals to consumers annually</li> </ul>	<ul style="list-style-type: none"> <li>Safeguards the supply of 6.5 million seafood meals annually</li> <li>Increases meals to market through 90% reduction in spoilage, delivering an additional 2.4 million seafood meals to consumers annually</li> </ul>	<ul style="list-style-type: none"> <li>Safeguards the supply of 6.7 million seafood meals annually</li> <li>Increases meals to market through a 13% reduction in spoilage in the supply chain, delivering an additional 800,000 meals to consumers annually</li> </ul>
Projected Financial Returns	<ul style="list-style-type: none"> <li>Targets 11.1% unlevered equity return with exit sale to strategic buyer</li> </ul>	<ul style="list-style-type: none"> <li>Targets 12.0% levered equity return with exit sale to strategic buyer</li> </ul>	<ul style="list-style-type: none"> <li>Targets 20.7% unlevered equity return with exit sale to strategic buyer</li> </ul>

### THE MARISCOS STRATEGY

The Mariscos Strategy (Mariscos) is a \$7.0 million impact investment to protect seven small-scale shellfish and crustacean fisheries along the Chilean coastline. The investment would fund the implementation of management improvements across these fisheries and the communities harvesting them, known in Chile as *caletas*, and be used to expand an existing consumer packaged goods company producing “heat and eat” meals for Latin American consumers, referred to herein as “GustoMar”. Mariscos targets an 11.1% unlevered equity return.

Chile’s 6,435 km coastline constitutes one of the most biodiverse and productive nearshore marine environments in the world, accounting for 4% of the world’s fisheries catch.<sup>20,21</sup> This productivity can be attributed in large part to the physical heterogeneity of the coastline, with at least five unique ecoregions, as well as unique oceanographic conditions including upwelling, nutrient inputs, freshwater influx, temperature regime, and bathymetric complexity.<sup>22</sup>

The Mariscos Strategy seeks to incorporate seven multispecies fisheries and fishing communities into a regional, sustainable seafood sourcing operation for the manufacture and delivery of packaged seafood products to domestic and international

retailers and institutional food service operators. The species are believed to be under moderate fishing pressure, which make the fisheries vulnerable to overfishing as consumer demand continues to grow. Broadly speaking, Chile has a strong fisheries management regime, but does not actively manage all of its nearshore benthic fisheries. Although fishers and vessels are typically registered, illegal fishing occurs with regularity, and only one species of seven in the Mariscos portfolio undergoes a stock assessment, with no maximum catch levels established. Altogether, nearly 550 fishers with some 200 vessels harvest the aforementioned species, producing roughly 34,000 metric tons (mt) of seafood landings each year, with an aggregated estimated value of \$190 million in 2014.

The Mariscos Strategy thus seeks to preserve current stock levels, with the potential for modest biomass increases in *caletas* facing localized depletion. The value created through the strategy’s spoilage reduction and efficiency gains would be shared with fishers in the form of a 25% price premium to market ex-vessel raw material prices for participating supplier partners, with an expected aggregate increase of fisher revenues of approximately \$1.8 million over the five-year

<sup>20</sup> Food and Agriculture Organization of the United Nations, “The State of World Fisheries and Aquaculture,” Rome, 2014.

<sup>21</sup> This figure excludes China.

<sup>22</sup> Advanced Conservation Strategies, “A Coastal Marine Assessment of Chile,” a report prepared for the David and Lucile Packard Foundation, 2011.

investment horizon.<sup>23</sup> In addition, Mariscos offers economic incentives for participation in its fishery improvement activities through the allocation of a 20% equity share in GustoMar to participating caletas. Mariscos aims to reduce spoilage in the supply chain and as a result increase the number of meals to market by 13.5%, or 150,000 additional annual meals with no increase in landings.

#### Potential Impact and Financial Returns

- Safeguards seven species stock levels with the potential to increase biomass by 10%, depending on fishery conditions
- Increases aggregate fisher revenues by \$1.8 million over a five-year period, and improves community resilience through the allocation of a 20% equity share in GustoMar to participating caletas
- Empowers fishers and fishing communities by creating more direct market linkages
- Increases meals to market through a 13.5% reduction in spoilage, delivering an additional 150,000 seafood meals to market annually
- Targets an 11.1% unlevered equity return over a five-year period

To accomplish these objectives, The Mariscos Strategy proposes the following bundled set of investments:

#### **1. An up-front investment of \$4.5 million into the Strategy to fund the design and implementation of fishery management improvements and the capitalization of Fishing Community Trusts**

**in each of the seven portfolio caletas.** Chile has a strong fisheries management regime, but does not actively manage most of its nearshore benthic resources. Although fishers and vessels are typically registered, illegal fishing occurs with regularity, with no maximum catch levels established for most species. The Mariscos Strategy seeks to protect these nearshore stocks by implementing fisheries management improvements that leverage the existing TURF system (a form of locally managed access limitation) and that utilize low-cost technology to improve compliance and fishery data collection. These management improvements would require an up-front investment of \$1.0 million, with ongoing improvement expenses paid out of the company's revenue.

Fishers willing to commit to fisheries management improvements and serve as suppliers to GustoMar's sourcing network would

We believe Mariscos has the potential to provide a novel, replicable model for sustainable seafood delivery from small-scale fishers in Chile, while showing that sustainable management and responsible sourcing can not only be profitable but also be a source of competitive advantage.

be eligible to participate in Mariscos' Sustainable Fishing Rewards Program. The Program would offer economic rewards to fishers and fishing caletas in two ways: through the payment of higher prices per unit of catch to individual fishers, with GustoMar estimated to be able to pay 25% more than other buyers, and through a newly established profit sharing mechanism called the Fishing Community Trust, or "FCT,"<sup>24</sup> whereby each *caleta* would be allocated an economic interest in GustoMar's business, earning a share of GustoMar's profits over time.

Because GustoMar is not projected to generate significant profit until the 5th year of the investment, Mariscos would initially capitalize the FCT with \$3.5 million, vesting in equal shares over the first five years in order to provide a more immediate reward to fishers and communities implementing sustainable fishing practices. The FCT would be structured as a community reserve fund or insurance pool, where funds could be drawn down by participant caletas to fund near-term revenue shortfalls and cover costs borne by the community as it adopts the transition to more sustainable fishing practices. In this way, the FCT both strengthens community resilience with committed funds up front to support short-term

<sup>23</sup> In constant 2015 dollars.

<sup>24</sup> The concept and structure of the FCT is borrowed in part from the structures used by Fair Trade in distributing premiums earned on Fair Trade products to producing *caletas*.



needs in the community, as well as a share of longer-term profits generated with the success of the caleta-GustoMar collaboration.

**2. An investment of \$2.5 million into the expansion of GustoMar, which would sell gourmet “heat-and-eat” meals to retail outlets and through the institutional food service channel.**

The investment would build supply-chain infrastructure, enabling the company to source raw materials directly from the seven fishing caletas described earlier, improve the quality

of products sourced from its portfolio, expand its manufacturing capacity, and extend the marketing and distribution of artisanally sourced seafood products from Chile.

Mariscos anticipates financing the \$7.0 million investment with equity (50%), a foundation grant (25%), and a government grant (25%). We believe this investment has the potential to generate an 11.1% equity return over five years with an exit through a sale to a strategic buyer.

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### THE MANGUE STRATEGY

The Mangue Strategy (Mangue) is a hypothetical \$15.0 million impact investment to protect the mangrove crab (*Ucides cordatus*) fishery in the Brazilian state of Pará. The \$15.0 million would fund the implementation of critical fishery management improvements across the fishery, and would be used to launch an integrated processing, marketing, and export business. This would include the construction of strategically located raw material buying stations, and a modern processing facility designed to meet both domestic and international food safety standards. Mangue targets a 12.0% levered equity return while protecting crab stock biomass from current and future overfishing, enhancing up to 1,300 fisher livelihoods across 98 fishing communities, and increasing annual meals to market by 2.4 million within nine years. Additionally, the strategy would support the sustainable management of over 300,000 hectares of critical coastal mangrove forest within the Amazon Delta, protecting the ecosystem service value of this critical habitat.

The Mangue Strategy outlines an impact investing strategy across a large swath of the coastline in the state of Pará, spanning some 300,000 hectares and encompassing nearly 30% of Brazil's total mangrove forest habitat. The state's mangrove forests produce roughly 50% of the total mangrove crab landed nationally. Straddling the heart of the Amazon Basin, Pará consists of some of the most species-rich habitat on Earth, but is also facing intense pressure from destructive land-use activities including mining, aquaculture, and deforestation, making it the subject of much national and international environmental concern. Pará's fisheries produce 50% of total mangrove crab landed nationally, with annual landings estimated at approximately 5,000 mt, representing an aggregate value of \$5.3 million in 2014.

A recent economic downturn in Brazil, combined with a devalued currency and strong international market demand for crabmeat, are expected to increase fishing effort in the 10 RESEX sites, as

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The Mangue Strategy is a hypothetical \$15.0 million impact investment to protect the mangrove crab fishery in the Brazilian state of Pará.

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community members look to the mangrove crab for subsistence and income. Such overfishing, in turn, could drive significant crab-stock declines, with ramifications for the broader ecosystem given the keystone role of the species. Moreover, there is increasing pressure being put on officials in Pará to allow the conversion of mangrove forests to shrimp aquaculture in an attempt to generate alternative livelihood opportunities, further threatening the mangrove crab fishery.

As such, the Mangue Strategy would attempt to implement robust management systems and provide an economic case for conservation *before* overfishing, habitat destruction, and stock depletion occur. Mangue aims to preserve current stock levels, with a modest upside potential of 10% in biomass and biodiversity gains due to reduced fishing

pressure.<sup>25</sup> The strategy aims to increase aggregate fisher incomes by 33%, offer greater community resiliency through profit-sharing mechanisms, and empower fishers through community organization and increasing market power. Mangue also has the potential to dramatically reduce spoilage in the supply chain, and increase the number of meals to market by up to 59%. In addition, we believe that by helping communities sustainably monetize the benefits of a healthy mangrove habitat, Mangue has the potential to generate nearshore biodiversity and coastal resilience co-benefits by limiting the conversion of critical mangrove forest habitats to aquaculture or other uses. Finally, our analysis suggests that Mangue has the potential to generate attractive financial returns, targeting a 12.0% levered equity return, with diversified cash flows stemming from both domestic and international markets over a nine-year horizon.

#### Potential Impact and Financial Returns

- Safeguards mangrove crab stock levels with the potential to increase biomass by 10%, depending on fishery conditions
- Increases aggregate fisher income by 33%, and improves community resiliency through a Fishing Community Trust (FCT) equity sharing structure
- Empowers fishers and fishing communities by extending formal recognition to newly organized professional associations that enable political, legal, and professional representation; thereby improving access to banking, credit, and government pension and health benefits and also raising social status
- Increases meals to market by 59%, delivering an additional 2.4 million meals to consumers annually
- Promotes local protection of 15% of Brazil's nearly 11,000 square kilometers mangrove forest from encroaching threats from development, mining, and shrimp farming by providing a more sustainable and profitable means of crab production
- Targets a 12% levered equity return over a nine-year period

To accomplish these objectives, Mangue proposes three core investments, split between fishery improvement activities and commercial operations, including:

#### 1. Engagement with fisheries authorities and communities to secure specific fishery management policy reforms.

To protect mangrove crab biomass and mangrove forests,

an effective access and catch limitation must be in place in the fishery. Mangue would seek to have the government (a) establish a system of fisher licensing and registration, (b) increase enforcement resources to reduce illegal fishing entry, and (c) prohibit the sale of illegally harvested crab.

<sup>25</sup> While the Mangue Strategy believes that the potential exists for stock recovery, the business model and project economics assume that the fishery is maintained at current biomass levels.



**2. An up-front investment of \$3.5 million into the Strategy to fund the design and implementation of fishery management improvements and the capitalization of Fishing Community Trusts in each of the ten RESEX<sup>26</sup> zones.** \$1 million of this investment will go toward fishery management expenses incurred over the first three years of the project prior to the establishment of commercial operations, and a total of \$3.6 million over the lifespan of the project. These fishery management improvements incorporate design criteria that are aligned with international sustainability standards and best practices, and would be subject to third-party verification and auditing.

Fishers and fishing communities willing to commit to fishery management improvements and serve as suppliers to a proposed Crab Export Business (CEB) network (as described in investment #3 below) would be eligible to participate in Mangue's Sustainable Fishing Rewards Program. Mangue proposes to utilize the program as a financial incentive to catalyze and maintain the implementation of sustainable artisanal fishing practices to support habitat protection, stock preservation, and regulatory compliance across the 10 RESEX communities. The program would offer economic rewards to fishers and fishing communities in two ways: through the payment of higher prices per unit of catch, and through access to a Fishing Community Trust (FCT). CEB expects to be able to pay fishers 30% higher prices than current local market prices for live, whole-crab raw material due to a combination of improved supply chain efficiencies and resulting decreases in spoilage rates of up to 90%, as well as higher margin sales to export markets for finished goods. In addition to this premium for raw materials, \$2.5 million of government and foundation grant capital would be contributed toward funding a "Fishing Community Trust" (FCT), the proceeds of which would be drawn down over the first four years of the project to pay for a variety of community improvements. The goal of the FCT in

years 1 through 4 would be to provide incentives for the communities to participate in Mangue's fishery improvement efforts prior to CEB being able to pay out premiums for sourced raw materials.

**3. An investment of \$11.5 million into the establishment of a new Crab Export Business (CEB), funding the construction of 10 buying stations for sourcing raw materials, a processing facility, and new marketing and sales channels for Brazilian mangrove crab.** This investment, made concurrently with investments #1 and #2, would create a commercial platform capable of adding value to the mangrove crab products with a potential financial return of 12% to impact investors after equity paid out to fishers and management. The \$11.5 million investment would source sustainably caught mangrove crab from Mangue's network of communities, upgrade the supply chain infrastructure, and legally market and export high-quality mangrove crab products, including both cooked crabmeat and fresh crabs, to other Brazilian states besides Pará as well as to international markets.

The Mangue Strategy would most likely be attractive to an impact-oriented equity investor with both a long-term investing horizon (8-12 years) and a willingness to take on outsized risk if a commercial financial return can be attained alongside significant environmental and social impact. We assume the total share of equity to be about 73% of the total capital contributed, with sponsor equity comprising 57%, and vesting FCT grant capital comprising 17% of the total capital structure. Although no commercial debt is assumed in the development of the business, Program Related Investment capital rounds out the remaining 27% of the capital structure in our model. According to base case financial projections, this investment in the mangrove crab fishery has the potential to generate a 12.0% levered equity return over nine years.

<sup>26</sup> The crab fisheries are managed in a system of extractive coastal reserves, referred to as "RESEXs," which limit noncommunity members from fishing the crab resource while allowing virtually unlimited crab resource extraction by community members living within the reserve area.

## THE ISDA STRATEGY

The Isda Strategy<sup>27</sup> (Isda) is a hypothetical \$11.7 million impact investment to protect and restore small-scale fisheries incorporating 80 communities<sup>28</sup> across the Philippine archipelago and at least 20 species. The \$11.7 million investment would fund the implementation of fishery management improvements across both pelagic and nearshore fisheries, and be used to expand “TambaCo,”<sup>29</sup> an illustrative processing and distribution business producing premium seafood products for both domestic and international markets. We believe the Isda Strategy has the potential to generate a 20.7% base case equity return, while simultaneously protecting the multispecies stock biomass from current and future overfishing, enhancing the livelihoods of up to 19,000 fishers<sup>30</sup> across 80 fishing communities,<sup>31</sup> and safeguarding the supply of 6.7 million<sup>32</sup> meals to market annually.

The Philippines comprises over 7,100 islands, encompassing an estimated 23,000 km of coral reef habitat supporting more than 3,200 fish species and 10,000 invertebrate species, supporting the region’s designation as a global biodiversity hotspot.<sup>33</sup> Fishing generates approximately 2.3 million metric tons (mt) of catch per year, making the Philippines the 11th largest producer of seafood in the world. Despite the importance of its fisheries for both food production and tourism, it ranks 21st among the top 28 fish-producing nations in terms of fisheries management and governance, due to limited research capacity, lack of effective access limitations, and improving but still inadequate enforcement of existing regulations.<sup>34</sup> The species group proposed for inclusion in the Isda Strategy incorporates a mix of at least 20 species, including

tuna, mahi mahi, snapper, trevally, mackerel, lobster, octopus, squid, crab, and sea urchin, landed across 80 fishing communities<sup>35</sup> throughout the Philippines.<sup>36</sup>

While the tuna and mahi mahi species (referred to herein as “the pelagic species”) are managed by regional bodies and considered to be in good health, the nearshore species are virtually unregulated due to budgetary constraints and limited implementation capacity by regulatory authorities. No stock assessments or science-based catch limits are in place for many of these nearshore species or communities. Lacking critical elements of a robust management framework, nearly all these nearshore fisheries have been subjected to decades of overfishing and habitat destruction. Although data that tracks landings shows increases in national landings over time, catch per unit of effort (CPUE), a primary indicator of fishery distress, has plummeted from 30 to 45 kg per fisher per trip to 3 kg per fisher per trip over the last 30 years.<sup>37</sup> The Isda Strategy, therefore, proposes to implement robust fisheries management systems to prevent further depletion, create fishery data-collection systems to enable adaptive management improvements, and ultimately restore nearshore species and ecosystems. Similar management measures, particularly around vessel monitoring and catch documentation, would be implemented for the tuna and mahi mahi fisheries as well, to backstop and improve national and regional management efforts.

The Isda Strategy proposes an investment into a combination of fishery management improvements and “TambaCo,” seeking to remedy overfishing

<sup>27</sup> “Isda” is the Philippine word for fish.

<sup>28</sup> In this blueprint, “community” refers to a “barangay,” the Philippine term for a village, and the smallest administrative division in the Philippines.

<sup>29</sup> Based on “tambakol,” the Philippine word for yellowfin tuna.

<sup>30</sup> Assuming two fishers per vessel in nearshore fishing communities and three fishers per vessel in pelagic fishing communities.

<sup>31</sup> Comprising 40 pelagic and 20 nearshore sourcing communities.

<sup>32</sup> Assuming run-rate of 1,332 tons of finished goods sold per year from year 5 onward and 200 gram (g) portion sizes.

<sup>33</sup> Food and Agriculture Organization of the United Nations, “Country Profile: Philippines,” fao.org, 2014.

<sup>34</sup> “Oceans Prosperity Roadmap: Fisheries and Beyond,” Synthesis Report, oceanprosperityroadmap.org, 2015.

<sup>35</sup> In this blueprint, “community” refers to a “barangay,” the Philippine term for a village, and the smallest administrative division in the Philippines.

<sup>36</sup> This list of species is indicative (not exhaustive) and based on preliminary assessment of raw material supply in target communities and market demand.

<sup>37</sup> Western and Central Pacific Fisheries Commission, 2015.



in its portfolio communities through a series of fishery management improvements, including the implementation of a TURF-reserve network, and roll-out of data collection technologies that aid in assessing stock health and fisher compliance with regulations. Isda's goal is to protect the existing biomass of the portfolio communities from further declines, with an opportunity to increase it by up to 20% in the nearshore communities over a 10-year period. In the Isda pelagic-species communities, the use of highly selective handline gear could reduce bycatch of sharks and billfish by up to 5,500 mt versus industrial longline alternatives over the 10-year investment period. Moreover, installation of vessel monitoring and catch accounting systems, implemented as part of the proposed suite of

fishery management improvements, could provide some of the first rigorous data collected for these species in the Philippines. In the nearshore fisheries, Isda has the potential to protect up to 1,000 hectares of coastal nearshore habitat as no-take zones across a network of TURF-reserves, and to increase coral cover by up to 150 hectares. From a social impact standpoint, Isda aims to increase fisher incomes by 15% in aggregate, offer greater community resilience through profit-sharing mechanisms, and empower fishers through access to better offtake channels. Finally, our analysis suggests that Isda has the potential to generate attractive financial returns, targeting a 20.7% equity return, with diversified cash flows stemming from both domestic and international sales.

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#### Potential Impact and Financial Returns

- Safeguards stock levels of at least 14 species, including both pelagic and nearshore, with the potential to increase biomass by 20%, depending on fishery conditions<sup>38</sup>
- Increases aggregate fisher revenue through a 15% premium paid per unit of raw material sourced by TambaCo, equivalent to a total of \$11.9 million<sup>39</sup> of additional income over the 10-year investment period
- Improves participant community resilience through the capitalization of a \$3.0 million Fishing Community Trust, vested over 10 years, and recapitalized with 10% of the proceeds generated by the sale of TambaCo, worth an estimated \$2.9 million<sup>40</sup>
- Avoids the harvest of an estimated 5,500 mt of bycatch, including shark and billfish, through the use of selective handline fishing gear<sup>41</sup>
- Increases community-designated “no-take zones” in each community TURF-reserve of at least 20% of the total area, totaling over 1,000 hectares
- Increases coral cover by 15% across the TURF reserve area, totaling 150 hectares of additional cover
- Increases meals to market through a 13% reduction in spoilage<sup>42</sup> in the supply chain, delivering an additional 800,000 meals to market annually<sup>43</sup>
- Targets a 20.7% equity return over a 10-year investment period

<sup>38</sup> A biomass increase is not built into the model.

<sup>39</sup> In constant 2015 dollars.

<sup>40</sup> In constant 2015 dollars.

<sup>41</sup> Assuming 2% bycatch in the artisanal handline fleet relative to approximately 30% in the industrial longline fleet applied to the total raw material sourced from this fishery by TambaCo over the 10-year investment period.

<sup>42</sup> Assuming TambaCo maintains spoilage rates of 2% or less versus an estimated 15% in the prevailing supply chain.

<sup>43</sup> Assuming a run-rate of 2,776 mt of raw material sourced by TC, a 45% processing yield, and 200 g portion sizes.

To accomplish these return objectives, The Isda Strategy proposes the following bundled set of investments:

**1. An up-front investment of \$6.2 million into the Strategy to fund the design and implementation of robust fishery management improvements across the 80 portfolio communities and the capitalization of a single Fishing Community Trust to be shared across the sourcing regions.**

The Isda Strategy proposes to expand the fishery improvement efforts of TambaCo and its partners from the 30 pelagic communities in which it currently operates to a total of 80 communities (60 pelagic and 20 nearshore) by the end of the fifth year of the strategy. The first-year cost of these fishery management improvements would be \$3.2 million, and total roughly \$19.4 million over the ten year strategy. By the end of the first year, the portfolio would consist of 35 communities predominantly landing the healthier pelagic species and five communities predominantly landing the nearshore species (including finfish, crustaceans, cephalopods, and echinoderms). As the logistics network reaches the breakeven point on the basis of its core tuna offerings, the Isda Strategy would expand the sourcing portfolio to include increasing numbers of nearshore species, as well as fishing communities. Given the profile of the sites and species in the contemplated portfolio of supplier communities, Isda proposes two improvement program models, one suited to the pelagic, or highly migratory, fishing communities, and the second model better suited to the nearshore multispecies fishing communities.

The principal management interventions in the nearshore communities would be the implementation of a TURF-reserve network. These areas would have designated no-take zones of at least 20% of the total area, and provide a de facto form of exclusive access for coastal communities. These zones would have specific fishery management plans outlining harvest, handling, and catch documentation practices, and likely would be designed and operated by a complementary operating partner.

The principal management intervention in the pelagic communities would be the installation of a technology package, designed for and

already tested in small-scale fishery settings. This package would include vessel tracking technology to record harvest location, composition, and gear-type, all of which would be captured passively and sent via Wi-Fi to a central receiver in a landing station. Landings would then be weighed at the landing station, and a unique bar code would be generated for each harvest batch that accompanies the product through the supply chain for traceability purposes. The data systems would be installed on all vessels targeting the species of interest for sourcing, and would feed a common database that provides information on fleet movements in space and time, catch and bycatch in weight by species, landings by vessel and species, and full traceability of products back to the vessel of origin. Most important, the system would capture landed and removed biomass for every fishing trip, thereby limiting Illegal, Unreported, and Unregulated (IUU) fishing.

By gathering this data across many different fishers and species, the system would create a rich database of metrics essential for adaptive fisheries management. The Isda Strategy could then analyze the data to generate user-specific reports that empower fishers to better control their actions, allow commercial partners such as TambaCo to ensure that they are sourcing fresh and sustainably harvested raw materials, and provide valuable data to authorities to inform management efforts. These data would ultimately be used to evaluate the status of stocks, set total allowable catch limits, assess the environmental impact of fisheries, and work out mitigation strategies.

Fishers willing to commit to fishery management improvements and serve as suppliers to TambaCo's sourcing network would be eligible to participate in Isda's Sustainable Fishing Rewards Program. Isda proposes to utilize the program as an incentive to catalyze and sustain the implementation of sustainable fishing practices. The program would offer economic rewards to fishers and fishing communities in two ways: through the payment of 15% higher prices per unit of catch, and through access to a Fishing Community Trust (FCT). The FCT would be precapitalized with \$3 million, the proceeds of which would be distributed to provide business-interruption insurance or other relief in the event of extended periods of

inclement weather or natural disasters for portfolio communities and their fishers. The Philippines is the country with the highest incidence rate for tropical storms, so the availability of these funds would, it is hoped, provide a strong incentive for compliance. The Isda Strategy would allocate 10% of the proceeds from its sale of TambaCo in the tenth year of the strategy implementation to recapitalize the FCT upon sale of the company.

## **2. An investment of \$5.5 million into the expansion of TambaCo, a mission-aligned company with a record of success in the processing and distribution of high-grade fresh and chilled tuna products.**

**The commercial investment thesis for Isda is centered on building a robust logistics network to source, process, and distribute high-value seafood products, particularly yellowfin tuna, from across the Philippines and primarily destined for export.** The investment would fund the expansion of the company's sourcing portfolio, upgrade and expand its processing and cold-chain logistics, and extend the marketing and distribution of sustainably sourced artisanal seafood products from the Philippines.

The investment would enable TambaCo to extend its cold-chain “backbone” logistics network to support eight core geographic clusters of product sourcing equipped with two to three buying stations per cluster. The buying stations would serve as collection and consolidation points for raw materials to be transported to the processing facilities in the capital, Manila, as well as centers for fishery management improvement outreach and commercial interaction with fishery stakeholders. In the buying stations, seafood raw materials would be procured from

fishery stakeholders, inspected against quality parameters and sustainability requirements, labeled with RFID tags that would serve as the core of the traceability program, and be prepared for loading and transport to Manila.

Once the core infrastructure is in place, TambaCo would be in a position to add incremental volumes of lower-value nearshore species for sale in the domestic, regional, or export markets with sufficient contribution margin to supplement profitability and positively affect artisanal fishing communities participating in its supply chain network. Nearshore species are expected to strengthen TambaCo’s business by diversifying its product line, eventually adding incremental profitability through economies of scale.

Nearshore species would be marketed under a newly developed branding program called the “Responsible Seafood Basket.” TambaCo proposes to offer the Responsible Seafood Basket as a way to enable incorporation of fisheries earlier in the cycle of fisheries management improvements implementation, before they have been in place long enough to comply with traditional sustainability standards. The fisheries management improvements will still be subject to high standards of sustainability but, given the level of expected depletion, will also allow for a longer period of rebuilding and restoration to take place while still enabling a limited volume of product to be sold in the marketplace to support fisher livelihoods.

Isda anticipates financing the \$11.7 million investment with equity (74%) and a foundation grant (26%). We believe this investment has the potential to generate a 20.7% equity return over 10 years.

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The Isda Strategy proposes an investment into a combination of fishery management improvements and “TambaCo,” seeking to remedy overfishing in its portfolio communities through a series of fishery management improvements ... and roll-out of data collection technologies that aid in assessing stock health and fisher compliance with regulations.

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## INDUSTRIAL-SCALE FISHERIES INVESTMENT BLUEPRINTS

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The term “industrial-scale fishery” refers to severely distressed, large-scale fisheries in the countries we evaluated, where stocks have been reduced to as low as 10% of their estimated biomass at maximum sustainable yield ( $B_{MSY}$ ) and existing management efforts have proven ineffective. While this degree of distress poses clear management challenges as well as real risks to impact investors, it also offers potentially outsized investment returns in the event that the strategy succeeds in restoring the targeted stock. As in conventional distressed assets investing, the panic and short-termism that often surround collapse creates opportunities for those with capital to spend and a plan for restoring value. With distressed fisheries this is generally the case, as valuable assets such as fishing rights, vessels, and processing infrastructure can often be purchased at a steep discount, while those players choosing to stay in the fishery are often most amenable to change.

The industrial-scale fishery Investment Blueprints propose investing in *comprehensive* fishery management improvements, acquiring fishery assets (such as fishing quotas or vessels) that increase in value as stocks recover, and investing in seafood companies to increase and maximize the value of increasing catch volumes over time. At the heart of each strategy lies a proposed set of fishery management improvements that seek to protect and restore fish stocks, reduce bycatch of unwanted species, and protect and restore marine habitat. Therefore, the industrial-scale blueprints target a robust set of interventions and multiple channels for ensuring fisher compliance. Similarly, the asset acquisition component of the strategy aims to allow investors to realize potential outsized returns to justify the upfront risks undertaken.

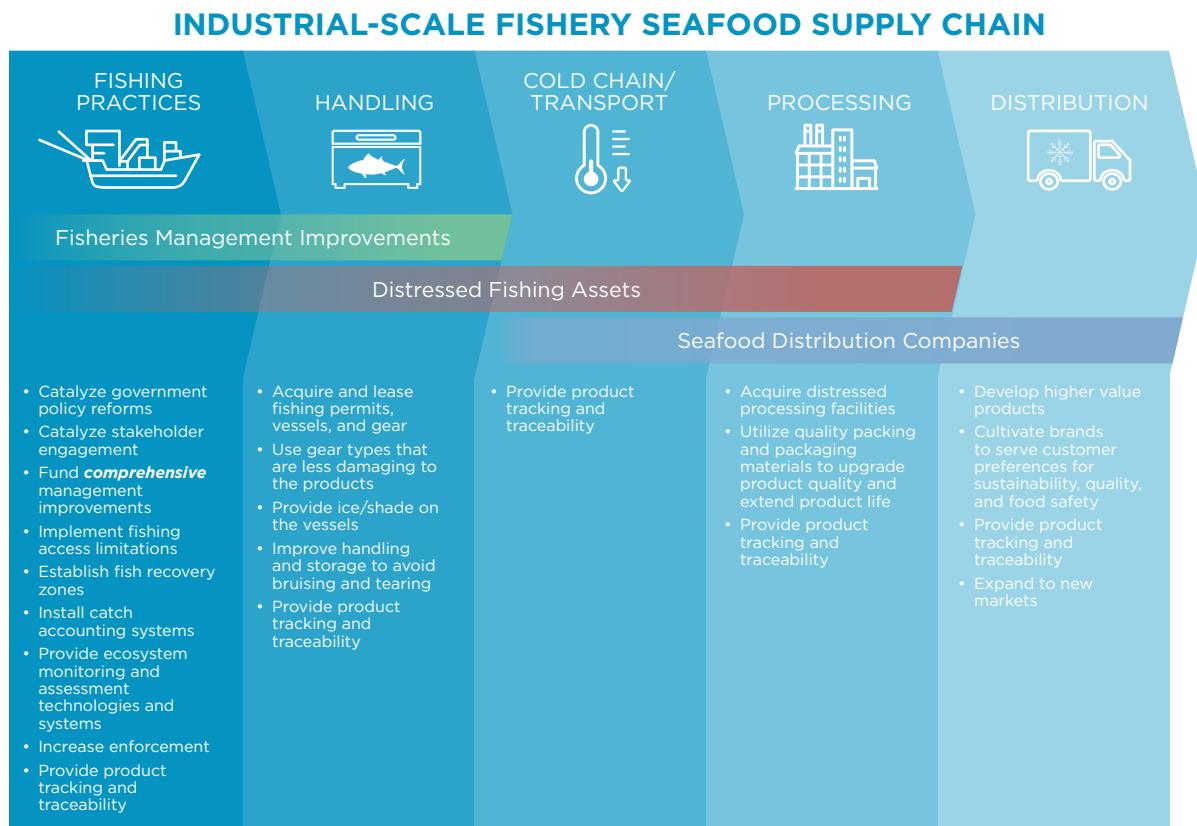
Because there is large impact and financial upside potential tied to the restoration of depleted stocks, each strategy seeks first to implement *comprehensive* fishery management reforms that affect the entirety of the fishery, and then to acquire assets that appreciate in value as the stock size and landings increase. Similar to the small-scale fishery strategies, value is also generated through increased supply chain efficiencies and value addition to the products. This market connectivity increases each strategy’s capacity to implement broad-scale improvements that might otherwise be undermined by the existing supply chain. By bundling investments into comprehensive fishery management improvements with investments into fishing assets and seafood companies, investors can support sustainability, generate cash flow, and own assets with value that is tightly correlated to fishery health, a value that rises over time as stocks recover. The economic

benefits generated through the investments can, in turn, be offered to fishers as rewards for compliance with sustainable fishing practices, creating a strong financial incentive for stewardship that counters the existing incentives that drive short-term depletion.

The industrial-scale fishery Investment Blueprints propose to fund change on the water, look to the

supply chain investments to deliver baseline returns, and turn to the fishing asset ownership to generate potential upside returns correlated with long-term fishery restoration. Figure 4 shares examples of the potential bundled investments, depending on the fishery and geographic location.

FIGURE 4: Industrial-Scale Fishery Seafood Supply Chain



Encourage Capital developed two Investment Blueprints to demonstrate how the industrial-scale fishery strategies could work to generate both financial returns and impact. Encourage engaged with its partners and advisors to develop and evaluate the challenges, opportunities, and risks associated with each Investment Blueprint. Each Investment Blueprint is tailored to the fishery's

unique stakeholder participants, regulatory context, supply chain, market dynamics, and intervention cost estimates to propose "ground-truthed" investment proposals and analysis.

Figure 5 below provides a profile of the two industrial-scale fishery Investment Blueprints in Chile and Brazil.

FIGURE 5: Industrial-Scale Fisheries Investment Blueprint Summaries

	THE MERLUZA STRATEGY	THE SAPO STRATEGY
Country	Chile	Brazil
Proposed Investment Amount	\$17.5 million	\$11.5 million
Investment Term	10 years	11 years
Fishery/Species Focus	Common Hake	Monkfish
Core Investments	<ul style="list-style-type: none"> <li>• Fishery Management Improvements</li> <li>• Fishing Quota</li> <li>• Seafood Company</li> </ul>	<ul style="list-style-type: none"> <li>• Fishery Management Improvements</li> <li>• Fishing Vessels and Permits</li> <li>• Seafood Company</li> </ul>
Targeted Fish Stock Impacts	<ul style="list-style-type: none"> <li>• Increase stock biomass by 177% to 269% from current levels</li> </ul>	<ul style="list-style-type: none"> <li>• Increase stock biomass by 100% from current levels</li> </ul>
Targeted Fisher Livelihood Impacts	<ul style="list-style-type: none"> <li>• Pay fishers 50% premium for raw materials</li> <li>• Empower fishing communities as commercial and conservation partners</li> </ul>	<ul style="list-style-type: none"> <li>• Pay fishers 30% premium for raw materials</li> <li>• Empower fishing communities as commercial and conservation partners</li> </ul>
Targeted Increase in Meals Produced	<ul style="list-style-type: none"> <li>• 136 million additional meals annually by year 10</li> </ul>	<ul style="list-style-type: none"> <li>• 7.5 million meals annually by year 11</li> </ul>
Projected Financial Returns <sup>44</sup>	<ul style="list-style-type: none"> <li>• 16.4% base case with up to 35% equity return with exit sale to strategic buyer</li> </ul>	<ul style="list-style-type: none"> <li>• 18% base case with up to 22% equity return with exit sale to strategic buyer</li> </ul>

The industrial-scale fishery Investment Blueprints propose investing in comprehensive fishery management improvements, acquiring fishery assets that increase in value as stocks recover, and investing in seafood companies to increase and maximize the value of increasing catch volumes over time.

<sup>44</sup> The targeted financial returns assume conservative EBITDA exit multiples and quota valuations with sales to strategic buyers in year 10.



## THE MERLUZA STRATEGY

The Merluza Strategy (Merluza) is a hypothetical \$17.5 million impact investment to restore the hake (*Merluccius gayi*, or “merluza común” as it is known in Spanish) fishery in Chile to its full biological and economic potential. The \$17.5 million would fund the implementation of comprehensive fishery management improvements, acquire 36% of the total fishing rights (or “quota”) in the fishery, and create a new hake processing and distribution business incorporating jumbo squid products and sales. The Merluza Strategy’s impact thesis is predicated on the assumption that by reducing overall fishing effort through a comprehensive set of interventions affecting over 70% of the stock, hake mortality can be sufficiently reduced to allow the stock to recover, thus improving fisher livelihoods and increasing food supplies over time. Merluza’s innovative approach would reduce the hake fishing effort by at least 27%, utilizing robust data collection and technology systems to improve fisher compliance with sustainable fishing practices, and offer financial incentives that reward sustainability over time.<sup>45</sup>

At its heart, the Merluza Strategy seeks to dramatically improve the stock status and commercialization of the common hake fishery and, in the process, meaningfully improve artisanal fisher livelihoods in the most important hake-fishing caletas in Chile. If successful, Merluza would restore the common hake stock to 75% of its  $B_{MSY}$ , an 177% increase from current levels, within a 10-year time-frame, allowing for increased landings of up to 70,000 mt per year, and putting the stock on a path to full recovery. In addition, through dramatic improvements in the harvest, handling, and supply chain, Merluza targets a payout of \$104 million in additional revenue to fishers over 10 years, to be divided among 1,800 participant artisanal fishers, plus the creation of approximately 136 million additional seafood meals. Merluza has the potential to generate a levered equity return of 16.4% in the base case over a 10-year horizon, with additional upside in the case of a more robust stock recovery.

### Potential Impact and Financial Returns

- Increases hake stock biomass by 177% in the base case, and 269% in the upside case
- Increases incomes for almost 1,800 artisanal fishers across 12 communities through premium payout of over \$58,000 per fisher, or a total of \$104 million over the 10-year period in the base case<sup>46</sup>
- Increases meals to market by 685 million meals over the 10-year period of the investment, and 136 million annually thereafter in perpetuity
- Targets a base-case 16.4% levered equity return over the 10-year period

<sup>45</sup> This reduction only includes the retirement of 20% of Merluza’s quota holdings and a vessel retrofit program in Region VII. The actual reduction in hake fishing mortality should be much larger as IUU fishing is reduced in each of the target caletas through improved management plans, backed by robust monitoring, enforcement, and economic incentives.

<sup>46</sup> These numbers are discounted to present value.



To accomplish these impact objectives, The Merluza Strategy proposes the following bundled set of investments:

**1. An investment of \$2.0 million up front, and a total of \$4.5 million over 10 years,<sup>47</sup> into a fisheries management company (FMC) to implement comprehensive fishery management improvements in the 12 largest hake-fishing caletas.**

The investment would fund the establishment of a fisheries management company that would implement a wide range of fishery improvements. These activities would include the implementation of full vessel monitoring and catch documentation coverage, replacement of all nets below a minimum mesh size, the retrofitting of possibly 70% of hake fishing vessels in the region with the highest IUU fishing to fish jumbo squid instead, and the coordination of extensive technical assistance and broader stakeholder engagement programs.

**2. An investment of \$9.4 million into the acquisition of 60% of the industrial hake quota, 80% of which would be reallocated to artisanal fishers in Merluza caletas, while 20% would be held, unfished and in reserve, to reduce fishing mortality and support stock recovery.<sup>48</sup>**

The quota ownership would give Merluza a means by which to immediately legalize a large portion of the IUU landings in the participant caletas. Quota would only be allocated to caletas fully engaged in Merluza improvement activities and where the Chilean fisheries regulatory authority

(Sernapesca) was present to inspect and certify all landings as legal. The quota asset would also give investors significant upside exposure to a stock recovery, as the value of the quota could rise dramatically with the stabilization and restoration of the fishery.

**3. An investment of \$6.1 million<sup>49</sup> into the creation of a vertically integrated hake and squid processing and distribution company (called “HakeCo”) that would source and commercialize hake and squid from the participant caletas, reconfiguring the prevailing supply chain while also modernizing artisanal fishing and landing practices to generate higher value for lower volumes.**

HakeCo would use financial incentives to reward fishers complying with fishery management improvements, paying an estimated 50% price premium relative to current market ex-vessel prices for all raw materials that met Merluza compliance standards.

Fundamentally, the Merluza Strategy can be conceived of as a pay-for-performance mechanism through which the return to investors is tied directly to the extent to which the fishery management improvements that they finance are successful in increasing the total stock biomass and landings. The share of equity necessary to finance the investment is assumed to be about 96% of the total capital contributed, and commercial debt 4%. We believe this investment in hake has the potential to generate a 16.4% equity IRR over 10 years.

The Merluza Strategy (Merluza) is a hypothetical \$17.5 million impact investment to restore the hake (*Merluccius gayi*, or *merluza común* as it is known in Spanish) fishery in Chile to its full biological and economic potential.

<sup>47</sup> Additional fishery management expenses are paid for through the quota leasing fees generated by FMC.

<sup>48</sup> This is the maximum share of industrial quota that can go unfished without being reallocated.

<sup>49</sup> This represents only the initial costs to establish the commercial operations.

## THE SAPO STRATEGY

The Sapo Strategy (Sapo) is a hypothetical \$11.5 million impact investment to restore the Brazilian monkfish (*Lophius gastrophysus*) stock to its full productive potential, while eliminating the most damaging bycatch and shifting activity away from destructive trawl practices. The \$11.5 million investment would finance a greenfield business, referred to here as “MarketCo,” seeking to acquire at least 85% of gillnet licenses and associated vessels, while creating a processing, marketing, and distribution business focused on value-added export products. In addition to international markets, MarketCo would also focus on developing a new domestic market among promising segments of the Brazilian population. Sapo targets an 18% levered equity return.

However, due to the dearth of good data on this fishery and species, as well as concerns about the potential for bycatch of threatened species, as part of its required due diligence Sapo would undertake detailed scientific assessments of the fishery to evaluate risk and determine the feasibility of management improvements prior to making a long-term commercial investment. In addition, Sapo must first engage with fishery authorities to cement policy reforms and ensure commitments around management, licensing, and enforcement activities that only the public sector can provide before other investments would be viable. The entire investment case depends upon this step being successfully achieved, as the business would not likely be viable from either a sustainability or financial perspective without effective governance and secure tenure over the resource.

If the findings of the scientific assessments and feasibility study confirm the viability of the strategy, MarketCo would fund and implement comprehensive fishery management improvements across the gillnet fishery, while acquiring and retiring up to 15 trawl vessels, which are currently harvesting monkfish unsustainably with little oversight, and implementing management reforms including strict access and catch limits among the remaining trawl vessels. Sapo targets an 18% base case levered equity

return with upside potential ranging to 30%, while simultaneously restoring monkfish stock biomass, reducing bycatch of threatened species, generating \$7.9 million in additional revenue for fishers and operators over the life of the project, and increasing annual monkfish meals to market by 7.5 million portions by year 11.

Once called the “the poor man’s lobster,” monkfish is now among the top 10 highest-value seafood products in the world, with a global import market of over \$400 million annually, and demand is growing. Unfortunately, Brazil’s monkfish fishery fell into distress starting in 2001, the result of overfishing by foreign charter vessels catching nearly 10,000 mt per year.<sup>50</sup> During this period, the foreign and domestic fleets targeting the species, composed of both gillnet and trawl vessels, generated significant bycatch, including the highly threatened angel shark and wreckfish species. While the foreign vessels are now gone, production by domestic gillnetters and double-rigged trawlers continues at an estimated annual volume of 1,500–2,000 mt.

Today, local fishery experts believe that to successfully reform the management of these fisheries, the government must limit vessel access, set strict minimum size limits, require gear modifications to minimize bycatch, enforce Total Allowable Catch (TAC) limits, identify and implement seasonal closed areas, and rotate fishing grounds throughout the year. Above all, Sapo’s success will fundamentally depend upon ongoing scientific assessment, monitoring, and data collection programs in order to restore the fishery and ensure the long-term sustainability of the resource.<sup>51</sup>

Sapo would seek to collaborate with four stakeholder groups to roll out the strategy. First, Sapo would work with NGOs, researchers, and government authorities to leverage recent efforts to reform the demersal trawl fishery as a core piece of Sapo’s value proposition to this segment. Second, Sapo would establish a joint venture with a best-in-class seafood processing, distribution and marketing team, hereafter referred to as “MarketCo,” responsible

<sup>50</sup> Perez et al., “Deep-water fishery in Brazil: history, status and perspectives,” *Latin American Journal of Aquatic Research* 37(3), 2009.

<sup>51</sup> Perez et al., “A bycatch assessment of the gillnet monkfish *Lophius gastrophysus* fishery of Southern Brazil,” *Fishery Research* 72, 2005.



for implementing and managing local processing and distribution operations and also for developing the marketing and sales channels in Europe and Asia as well as niche domestic high-value food service markets. Third, Sapo would invest in fleet improvements and new vessels (as science-based catch limits and regulations dictate) in partnership with monkfish fishers organized under the newly established “CatchCo” — a non-profit association of fishers and operators that would manage the gillnet fishing operations, implement fishery improvements, and provide economic and social benefits to its members. Fourth, Sapo would partner with NGOs, regulators, and the fishery management committee to help finance and implement an MSC Fisheries Improvement Program, with the ultimate goal of MSC certification of the gillnet monkfish fishery.

The Sapo impact investment thesis relies upon the following four strategic drivers:

1. Reduction of between 40% and 60% of legal and IUU trawl fleet monkfish catch through vessel buybacks, catch limits, and management improvements, to less than 15% of total landings;

2. 75% reduction of juvenile monkfish catch, further enabling stock recovery and stabilization;
3. Reduction of overall bycatch by 50%, of bycatch of threatened species by 75%, and of total discards by 60% through science-based improvements to the fisheries management plan;
4. The use of financial incentives to reward fishers for compliance with fisheries management improvements

Sapo’s fundamental objective is to restore the distressed monkfish fishery to full stock health at  $B_{MSY}$  over the life of the 11-year investment while enabling a 100% to 200% increase in regulated, sustainable TAC and landings, reaching a target MSY after seven years, while eliminating substantially all bycatch of threatened species.<sup>52</sup> The successful implementation of Sapo has the potential to generate approximately 7.5 million additional seafood meals to market each year and an 18% levered equity IRR over an 11-year investment horizon, with significant upside potential.

#### Potential Impact and Financial Returns

- Increases monkfish stock biomass and/or associated sustainable TAC, through better science and management, by 100% in the base case and 200% in the upside case
- Increases annual meals to market by almost 7.5 million by year 11, an increase of 375%
- Increases revenues to CatchCo fishers and operators of \$7.9 million in aggregate over 11 years, while growing the number employed in the gillnet fishery from 18 to 90 people, and creating ~100 new jobs in the business’ operations
- Provides professional benefits including insurance, profit sharing, back office support, education, improvement in on-board living conditions, and training
- Targets a base case 18% levered equity return over an 11-year period

The Sapo Strategy (Sapo) is a hypothetical \$11.5 million impact investment to restore the Brazilian monkfish stock to its full productive potential, while eliminating the most damaging bycatch and shifting activity away from destructive trawl practices.

<sup>52</sup> Wahrlich, et al., “Structure and Dynamics of the Monkfish *Lophius gastrophysus* Fishery of Southern and Southeastern Brazil,” *Boletim do Instituto do Pesca*, São Paolo, 2002.

Upon the investor commitment of \$11.5 million to establish MarketCo, the capital would be deployed, in part, as follows:

- 1. Invest \$750,000 in robust monkfish stock and bycatch assessments across both gear types to collect baseline data, establish sustainability targets, collaborate with stakeholders, define scope of management improvements, and determine the feasibility of meaningful improvements and key success factors.**  
To take place during years 1 and 2.
- 2. Working with an NGO advocacy partner, secure binding regulatory commitments from fisheries managers and stakeholders before committing any long-term capital investment, to ensure that managers implement and enforce strict, science-based access limits and vessel quotas for the double-rigged trawl fleet.<sup>53</sup>**
- 3. Invest a \$2.8 million into a voluntary trawl vessel buyback program to retire up to 15 trawl vessels currently fishing monkfish during the first two years, reducing overall trawl fishing effort<sup>54</sup> and eliminating juvenile monkfish catch by up to 75% with the transition to deep-water gillnets.**
- 4. Invest the \$750,000 in fisheries management improvement reserve funds and current income from MarketCo's commercial operations (Step 5) to fund the implementation and operations of a comprehensive fishery management improvement program in the monkfish gillnet fishery to be implemented by CatchCo, with a focus on:**
  - a. Significant reduction of bycatch – Particularly focused on threatened species, by means of the actions recommended following Step 1**
  - b. Monkfish stock recovery and stabilization at near B<sub>MSY</sub> and fund a plan to sustainably optimize yield.**
  - c. International market-recognized sustainability designation(s) such as Marine Stewardship Council ('MSC') certification and SeafoodWatch "green" or "yellow" labels**

**4. Invest \$2 million to launch "MarketCo," an asset light monkfish processing, distribution, and marketing business, and work with existing operators to establish "CatchCo", an independent NGO that will serve as an association to recruit, train, and employ fishers, provide social benefits, administer the Sustainable Fishing Rewards Program (SFRP) and implement fisheries management improvements.**

- a. Establish two subsidiaries under MarketCo, an operating company (OpCo) and an fisheries infrastructure asset company (AssetCo)**

**6. Invest up to \$5 million in equity funded by the remaining capex reserve and current income from MarketCo's commercial operations in staged investments to exercise purchase options<sup>55</sup> on quota and licenses and expand the gillnet fishing fleet under AssetCo<sup>56</sup> ownership and control as the TAC increases over time; and invest in landing infrastructure and in-house processing capability as the product throughput reaches appropriate scale and project risks/uncertainties are removed.**

- a. A combination of equity and follow-on commercial mortgage loans will finance the capital plan over a 5-year period starting in year 4**

By bundling government reforms together with private investment in the supply chain, Sapo aims to ensure compliance with sustainable management practices by eliminating destructive or illegal activities, controlling the key assets and leverage points required to implement sustainable fishing practices, and creating positive economic incentives for all participants.

The impact equity investor for such a strategy should have a 10- to 12-year investment horizon. The assumed share of equity is 80% of the total initial capital contributed, with PRI debt comprising the balance. We believe this investment in monkfish has the potential to generate an 18% leveraged equity return.

<sup>53</sup> Step 2 is a critical lynchpin for this strategy to be in a position to succeed.

<sup>54</sup> Dependent upon Step 2 to limit catch/vessel and establish overall TACs.

<sup>55</sup> Obtained through the retirement of the double rigged trawl vessels.

<sup>56</sup> AssetCo is a subsidiary under MarketCo that holds all of the hard infrastructure assets, while the other subsidiary, MarketCo's Operating Company, would seek an asset light strategy.



## NATIONAL-SCALE FISHERIES INVESTMENT BLUEPRINT

The term “national-scale fishery” refers to fisheries that face critical barriers to effective governance stemming from a lack of infrastructure, data, institutional capacity, and political will to deliver effective regulations and public commitments. These fundamental deficiencies in resources, information, institutional capacity, and technology inhibit effective fisheries management at the national- or supranational-scale, distort market incentives and are at the root of Illegal, Unregulated, and Unreported (IUU) fishing.

Among the greatest challenges to national-level fisheries reform in emerging markets is the lack of transparency and data on the status of the underlying resource and the flow of products through the supply chain. Lack of data prevents authorities, seafood buyers, and other stakeholders from knowing who is fishing illegally, where they are fishing, how much they are catching, and where that product is being sold, which makes good fisheries management difficult, if not impossible. Greater control of information offers significant potential to tip this system in a positive direction, and while it will not directly increase fish stocks, it will provide a foundation for good fisheries management. The growth in low-cost data management technologies and “big data” also offers promising solutions.

We sought to address this challenge by developing a public-private partnership (PPP) model to finance, develop, implement and operate infrastructure and services necessary to address critical information gaps. This approach identifies the key pressure points in the system where relatively small investments in infrastructure can have outsized social and environmental impact. By employing a PPP model, the private sector can help finance complementary IT and monitoring infrastructure, such as vessel monitoring systems (VMS) and electronic catch accounting, where the public sector has failed to deliver these resources. This in turn enables fisheries authorities to focus limited monitoring and enforcement resources on the regions and situations where these interventions can be most impactful.



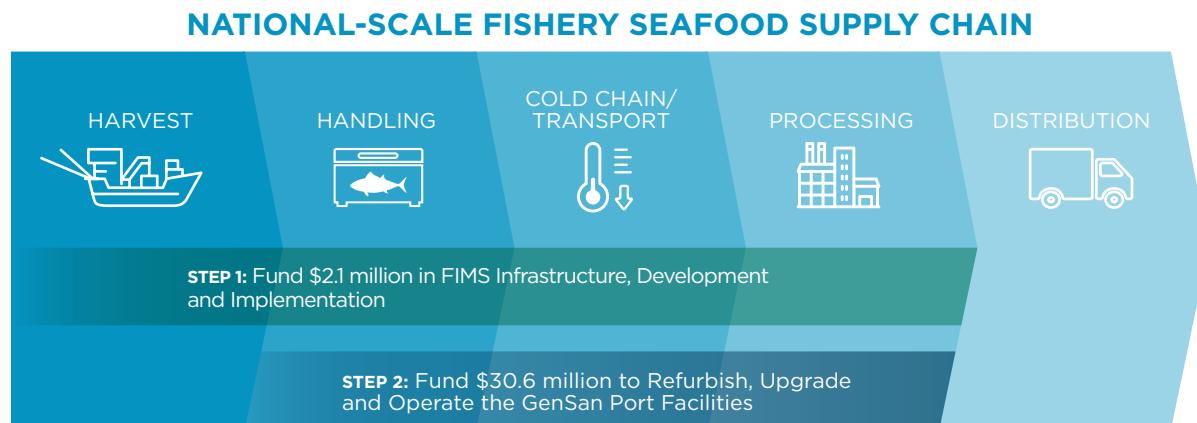
These solutions deliver fisheries management interventions through two categories of bundled investments, as highlighted in Figure 5:

1. Comprehensive fisheries information management systems (FIMS) packages, including shore-based and on-the-water tools such as monitoring, control, and surveillance (MCS), traceability systems, and electronic catch accounting.

2. The assets and operations of “brick and mortar” fishing port infrastructure at key landing and market access points, which serves as the basis for a long-term government concession.

By bundling a FIMS data-management investment together with port infrastructure and operations, the national-scale strategy offers a stable revenue stream to support the public good provided by information access and transparency.

FIGURE 6: The National-Scale Fishery Seafood Supply Chain



## THE NEXUS BLUE STRATEGY

The Nexus Blue Partnership Strategy (Nexus Blue) is a hypothetical \$34.0 million<sup>57</sup> public-private partnership investment structure to finance and implement targeted infrastructure and IT solutions that would enable management reforms throughout the supply chain of the Philippines' high-value regional tuna fisheries. This strategy seeks to upgrade the operations and infrastructure of the General Santos Fish Port Complex (GenSan), and the port, in turn, serves as the platform for implementing and operating a comprehensive fisheries information management system (FIMS) PPP. GenSan acts as a "bridge" between on-the-water production and high-value export markets, offering a natural leverage point in the otherwise complex and diffuse supply chain.

Highly migratory tuna populations are the source of more than 90% of total fish landings at GenSan. While seemingly strong Filipino, regional and international regulations and standards exist to govern these stocks, fisheries authorities are often unable to implement and enforce these laws. Reasons for this vary, but budgetary constraints, industry opposition and limited data are commonly cited. Nexus Blue is designed to address these challenges and restore and protect the tuna fishery.

Nexus Blue's FIMS component would deliver critical data to the Philippine National Stock Assessment Program's (NSAP) databases and the Western Central Pacific Fisheries Commission (WCPFC), which manages highly migratory fish stocks across the region. At the same time, the GenSan modernization component would restore the facility

while making improvements to sanitation, markets, and post-harvest facilities. The modernization initiative would also install solar power generation, build 3,000 mt of new cold storage capacity, and increase operational efficiencies alongside shore-based governance capabilities. As the only port with certification from the EU and U.S. to export fresh and canned seafood products to those markets, GenSan represents a critical path to market that industry cannot ignore.

While Nexus Blue as a standalone initiative cannot restore fish stocks in short-term, and is not designed to, it has great potential to catalyze positive reform momentum and provide the information and controls needs as a foundation for sustainable fisheries management. This would require the commitment of Philippine fisheries authorities to complete implementation of fishery-wide vessel registration and establish maximum catch limits for the tuna and sardine fisheries as a part of the PPP process. However, the strategy aims to catalyze better fisheries management in the Philippines and across the region, as the innovative financing structure for a high-quality data management solution offers a replicable model for fisheries management improvements. In addition, economies of scale have the potential to drive down adoption costs for subsequent, commercially less valuable fisheries. Nexus Blue has the potential to generate stable and attractive financial returns, targeting a 15% unlevered project IRR, with equity returns upwards of 20% over an assumed 33-year project life (3-year construction period and 30-year concession period).

<b>Potential Impact and Financial Returns</b>	<ul style="list-style-type: none"> <li>Creates a best-in-class data collection system in partnership with the Philippines government capable of electronic monitoring and reporting, traceability, and near real-time data transmission</li> <li>Addresses EU requirements for Vessel Monitoring Systems (VMS), traceability, and reporting, while informing regional stock assessments with improved catch accounting</li> <li>Targets a 15% blended equity return over a 33-year project life</li> </ul>
<b>Potential Indirect Impact Returns</b>	<ul style="list-style-type: none"> <li>Catalyzes implementation of science-based catch limits across Philippine fisheries</li> <li>Removes barriers to migratory fish stock restoration and management improvements in the Philippines</li> <li>Serves as a model for replication in the region</li> </ul>

<sup>57</sup> The combined CAPEX investments for the project sum to \$32.7 million; the remaining \$1.3 million out of the total \$34.0 million investment covers transaction costs and financing fees.

To accomplish these objectives, Nexus Blue proposes a PPP with the Philippines government with the following two components:<sup>58</sup>

**1. Upon establishing a project company special purpose vehicle (NexusCo), an investment of \$2.1 million iinton a subsidiary of NexusCo (referred to hereafter as “FIMSCo”), which would be dedicated to the development and implementation of a comprehensive Fisheries Information Management System (FIMS).**

The FIMS would have two interdependent components: 1) at sea, “on-the-water” IT infrastructure and tools for data collection, monitoring, traceability, and enforcement; and 2) port-based IT Infrastructure and tools for catch accounting, market transparency/efficiency, traceability, and enforcement.

**2. A simultaneous investment of \$30.6 million in a second subsidiary of NexusCo, referred to as “PortCo,” which would be dedicated to port infrastructure renovations and long-term operations of the General Santos Fish Port**

**Complex.** Specifically, this would restore the port to the environmental, safety, sanitation and food safety standards that it was originally designed to meet, increase the efficiency and quality of operations, logistics, post-harvest services (processing and cold storage facilities) and market activities, to the benefit of GenSan’s users. Investment in 2.4 MW of reversible solar power

would buffer electricity prices and enable power to be sold back onto the grid as an added venue source. In addition, management and operational efficiencies promise to put GenSan back on a path to financial viability, and establish a world-class operation that could serve as a model throughout the region.

By bundling the FIMSCo activities and investments with the PortCo as a port-based PPP, the operator would be positioned at a key gateway in the supply chain between the regulators and the regulated as a neutral intermediary. The complementary nature of hard infrastructure and fisheries IT investments would address the needs of the Philippines Amended Fisheries Law while simultaneously: (a) shifting the financial compliance burden of VMS requirements from fishers; (b) adding value to industry by improving and maintaining high-quality industry operations and supply chain efficiency; and (c) promoting the rapid deployment of electronic monitoring (EM)/electronic recording (ER) technology to capture the data needed by regulators for monitoring, control and surveillance (MCS) and fisheries science. The combination of technology deployment and value-added improvements at GenSan would in turn build support for, or at least acceptance for, the adoption of activities required under the Amended Fisheries Law on the part of industry, which to date has represented a key barrier to reform.

The Nexus Blue Strategy (Nexus Blue) is a hypothetical \$34.0 million public-private partnership investment structure to finance and implement targeted infrastructure and IT solutions that would enable management reforms throughout the supply chain of the Philippines’ high-value regional tuna fisheries.

<sup>58</sup> The combined project CAPEX investments for the project sum to \$32.7 million; the remaining \$1.3 million out of the total \$34.0 million investment covers transaction costs and financing fees.



## RECOMMENDATIONS FOR KEY STAKEHOLDERS

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The goal of Encourage Capital's sustainable fishing Investment Blueprints is to engage the interest of investors and entrepreneurs in funding and creating projects and businesses that have the capacity to profit from the protection and restoration of marine fisheries. We hope that fishery stakeholders consider supporting the strategies outlined in each of the three study countries, and that the blueprints can serve as design templates for replication of the strategies in a broad range of fisheries and countries.

We offer the following conclusions and recommendations to fishery stakeholders seeking to mobilize private capital to accelerate fishery reforms globally:

### 1. Private Investors

Private capital can play several key roles in advancing sustainable fisheries. Investors' holistic approach and return-seeking discipline can foster greater accountability in the design of fisheries management improvements, by aligning financial performance to successful fisheries management. Private investors can also use investments to selectively reward and incentivize successful social entrepreneurs and participating fishers and fishing companies, and fill funding gaps that government or philanthropy are unable or unwilling to provide. Most importantly, private investors, in aggregate, have sufficient funds to scale fishery management efforts far more broadly.

### 2. Foundations and Grantmakers

In addition to traditional grant programs focused on policy advocacy, certification strategies, etc., foundations and grantmakers are uniquely positioned to use their capital to fund analyses and research that can support project development by a wide range of actors, including the profiling of multiple opportunities, the analysis of specific fishery conditions, narrowing of opportunities to those with the highest impact potential, identification of commercial partners, and transaction structuring and modeling. Many private investors are unwilling to fund such activities as early stage project development costs because the risks of failure are simply too high, and prefer to invest once a project has met key milestones in terms of analysis and stakeholder engagement.

In addition, until there are strong case studies of successful fisheries-oriented impact investments that can offer evidence of impact and financial performance, private investors will continue to be reluctant to undertake the perceived complexity involved in fisheries reform. Grantmakers can play an important role in catalyzing private capital flows towards sustainable fisheries by supporting impact investing pilot projects through the provision of grants, program-related investments, loan guarantees, or other forms of credit enhancement to better demonstrate their viability.

### **3. Multilateral Institutions**

Multilateral institutions are well positioned to utilize their large balance sheets and funding pools to provide a range of credit enhancement, lending products, insurance, and technical capacity support to impact investment strategies. Sustainable fishery investments can offer a compelling return profile that fulfills critical institutional priorities around food security and economic development. Depending on the specific institution and its resources, multilateral capital available for financing specific transactions, or leveraging capital at the so-called fund level could catalyze local government or banking engagement and enable scale-up of promising strategies.

### **4. Non-Governmental Organizations and Not-for-Profits**

NGOs and not-for-profits can play an essential role in setting the appropriate sustainability standards, advocating for foundational policy reforms, and advancing the state of scientific understanding. To best support impact

investment opportunities, NGOS and not-for-profits could design and package fisheries management and community engagement as services, more easily paired to and partnered with commercial strategies, to increase investor confidence that complex projects can be effectively implemented on the ground. NGOs and not-for-profits with global reach and activities are also well-positioned to generate transaction opportunities for investors seeking to support sustainable fisheries, and can partner with fund managers, foundations, or family offices to originate investment opportunities at lower cost than might otherwise be possible. Properly resourced and appropriately skilled NGOs and not-for-profits should also consider making investments themselves.

### **5. Social Entrepreneurs**

Social entrepreneurs are another critical audience in the sustainable fisheries equation. Entrepreneurs can develop effective, low-cost fisheries management strategies, technologies, and community engagement mechanisms. They can bring creative branding and marketing ideas to bear, challenging traditional market mechanisms and supply chain management that has for too long maintained the status quo. Successful implementation of the complex strategies required to transform fisheries will require strong leadership, and investors with money to invest will be eager to embrace teams and individuals willing and able to design business models that generate financial returns from fishery recovery.

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The goal of Encourage Capital's sustainable fishing Investment Blueprints is to engage the interest of investors and entrepreneurs in funding and creating projects and businesses that have the capacity to profit from the protection and restoration of marine fisheries.

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## CONCLUSION

As the world's population grows and becomes more prosperous, the demand for animal protein will continue to increase exponentially. Wild-caught seafood can — and should — continue to play an important role in meeting this demand, particularly since its production requires no land, needs minimal fresh water, and results in the lowest greenhouse gas emissions of any major animal protein.

Unfortunately, in the absence of sustainable management, commercial-scale wild seafood production could largely disappear. This outcome has the potential to meaningfully alter our relationship with the ocean, with massive ramifications for marine ecosystems, for the 30 million fishers and the 90 million people overall who rely on wild fisheries for employment and for global food security.

To date, philanthropic and government resources alone have proven insufficient to curtail overfishing on a global scale. As such, Encourage Capital's Investment Blueprints seek to engage the interest of impact investors in funding companies and projects that generate financial returns from the protection and restoration of marine fisheries. Although the Investment Blueprints examine opportunities in only a small subset of the world's fisheries, the strategies presented have the potential to be replicable across many, perhaps even most, species and geographies.

If these new approaches to seafood production prove successful in delivering durable financial and impact returns, we believe they could unlock much larger pools of private capital for marine conservation to catalyze and scale fishery improvement efforts. This outcome could fundamentally change the landscape of the seafood industry — protecting our oceans and providing an ongoing source of food and income for generations to come.



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