

# Connecting the Dots: Linking Sustainable Wild Capture Fisheries Initiatives and Impact Investors

**A SYNTHESIS OF FINDINGS BASED ON  
MULTI-FISHERY VALUE CHAIN ANALYSIS**

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THE DAVID AND LUCILE PACKARD FOUNDATION  
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## PAPERS AND PROJECTS INFORMING OUR WORK:

“Priming the Pump: The Case for a Sector Based Approach to Impact Investing” by Matt Bannick and Paula Goldman. Project of the Omidyar Network.

*Find it here:* [http://www.omidyar.com/sites/default/files/file\\_archive/insights/Priming%20the%20Pump\\_Omidyar%20Network\\_Sept\\_2012.pdf](http://www.omidyar.com/sites/default/files/file_archive/insights/Priming%20the%20Pump_Omidyar%20Network_Sept_2012.pdf)

“From Blueprint to Scale: The Case for Philanthropy in Impact Investing” by Harvey Koh, Ashish Karamchandani, and Robert Katz. Project of the Monitor Group.

*Find it here:* <https://www.mim.monitor.com/blueprinttoscale.html>

USAID Value Chain Development Wiki.

*Find it here:* <https://www.microlinks.org/good-practice-center/value-chain-wiki>

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## ABBREVIATIONS AND ACRONYMS

EDF	The Environmental Defense Fund
ISU	The Prince of Wales's Charitable Foundation, International Sustainability Unit
KKP	Indonesian Ministry for Marine Affairs and Fisheries
OJK	Indonesian Financial Services Authority
MBA	Monterrey Bay Aquarium, Seafood Watch
MSC	Marine Stewardship Council
TNC	The Nature Conservancy
USAID	United States Agency for International Development

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# Connecting the Dots: Summary of Findings

As our need for the oceans to provide us with food and livelihoods increases, the sustainability of fisheries becomes increasingly vital. One of the key components of fisheries value chain sustainability is the long-term economic sustainability of the fishermen. Without proper conditions to allow organizations to innovate and scale, economic, ecological and social returns are even more difficult to realize.

Wilderness Markets, with the support of the David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation, undertook a series of fishery value chain assessments to better understand the opportunities and constraints for private impact capital to flow into wild-capture fisheries markets. Building on extensive impact-focused investment experience in agricultural value chains, our objectives were to:

- Support the creation of sustainable wild capture fisheries investment strategies by identifying appropriate frameworks for the assessment and development of intervention opportunities.
- Identify and categorize potential impact investment opportunities in wild capture fisheries utilizing a combination of frameworks in three countries.
- In the absence of impact investment opportunities, document value chain constraints preventing such opportunities.

We assessed four developing country fisheries (DCFs) in two countries and one fishery in the U.S. Each fishery we assessed provided a piece of a larger puzzle, allowing us to identify the components of a sustainable seafood value chain and its relationship to stock health, which in turn, drives value chain health. We present this value chain as an integrated framework on page 6.

While we were unable to identify viable triple bottom line (TBL)<sup>1</sup> impact investment opportunities in DCFs, which are common in agriculture in developing markets, we did identify an emerging set of opportunities in the U.S. Indeed, the U.S. fishery had the largest number of sustainable, investable, TBL opportunities; the “sustainability” of this fishery is owed to its biological recovery, which a legally mandated, scientifically informed quota system has fostered.

Conditions in the U.S. fishery provide valuable contrast to the DCFs and some important lessons. The presence of a legally recognized and enforced management system, as found in the U.S. fishery, is clearly a prerequisite for development of investable enterprises in a sustainable wild capture seafood value chain. However, despite the improvements at the resource level, the continued challenges harvesters face in the U.S. fishery are consistent with those in the DCFS assessed, due to their lack of access to appropriate information, infrastructure, markets and market data.

The six main factors contributing to an economically sustainable value chain are data, management, market differentiation, infrastructure, finance and investable entities.

A fishery must address each factor in order to provide an environment conducive to investment.

<sup>1</sup> Triple bottom line refers to accounting for not only the financial bottom line, but also social and environmental outcomes

# Methodology

We concluded that to provide an environment for investment and long-term environmental and social sustainability, fisheries must address six main constraints—data, management, market differentiation, infrastructure, finance and the lack of investable harvester level organizations. Our findings further imply that a strategy to address these constraints simultaneously is obligatory. None of the fisheries reviewed had addressed all six. From an investment perspective, investing in open access, wild capture DCF for only social and financial outcomes is likely to exacerbate and accelerate rates of stock extraction in often already depleted stocks.

Even where investable entities did exist, the business case for sustainable practices was either poorly understood or did not exist. In both situations, the lack of reliable information and innovative pilot initiatives is hampering the ability to make grant and program-related investment (PRI) decisions based on historical data, which is necessary for effective due diligence. Given the gap between sustainable fisheries initiatives and the requirements of impact investors, we therefore recommend the development of a portfolio of pilot solutions which should include opportunities to improve information and “test and pilot” potential models.

We are grateful to the David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation for their support of this work.

We used a data-driven USAID value chain approach<sup>2</sup> to evaluate a total of five fisheries in three different regions through field based interviews: a multi-species fisheries value chain in the Baja peninsula area of Mexico; the Indonesian blue swimming crab (BSC), snapper, and skipjack and yellowfin tuna value chains; and the California groundfish value chain on the West Coast of the U.S. In addition, we used a range of frameworks and models during the course of these assessments, including: “Priming the Pump: The Case for a Sector Based Approach to Impact Investing”<sup>3</sup> from the Omidyar Network; “From Blueprint to Scale: The Case for Philanthropy in Impact Investing”<sup>4</sup> by Monitor Institute; and finally, from EDF and ISU, “Towards Investment in Sustainable Fisheries: A Framework for Financing the Transition.”<sup>5</sup>

The EDF/ISU framework identifies **three Key Enablers** that are prerequisites to increased value: secure tenure, sustainable harvests, and robust monitoring and enforcement.

2 USAID Value Chain Development wiki; <https://www.microlinks.org/good-practice-center/value-chain-wiki>

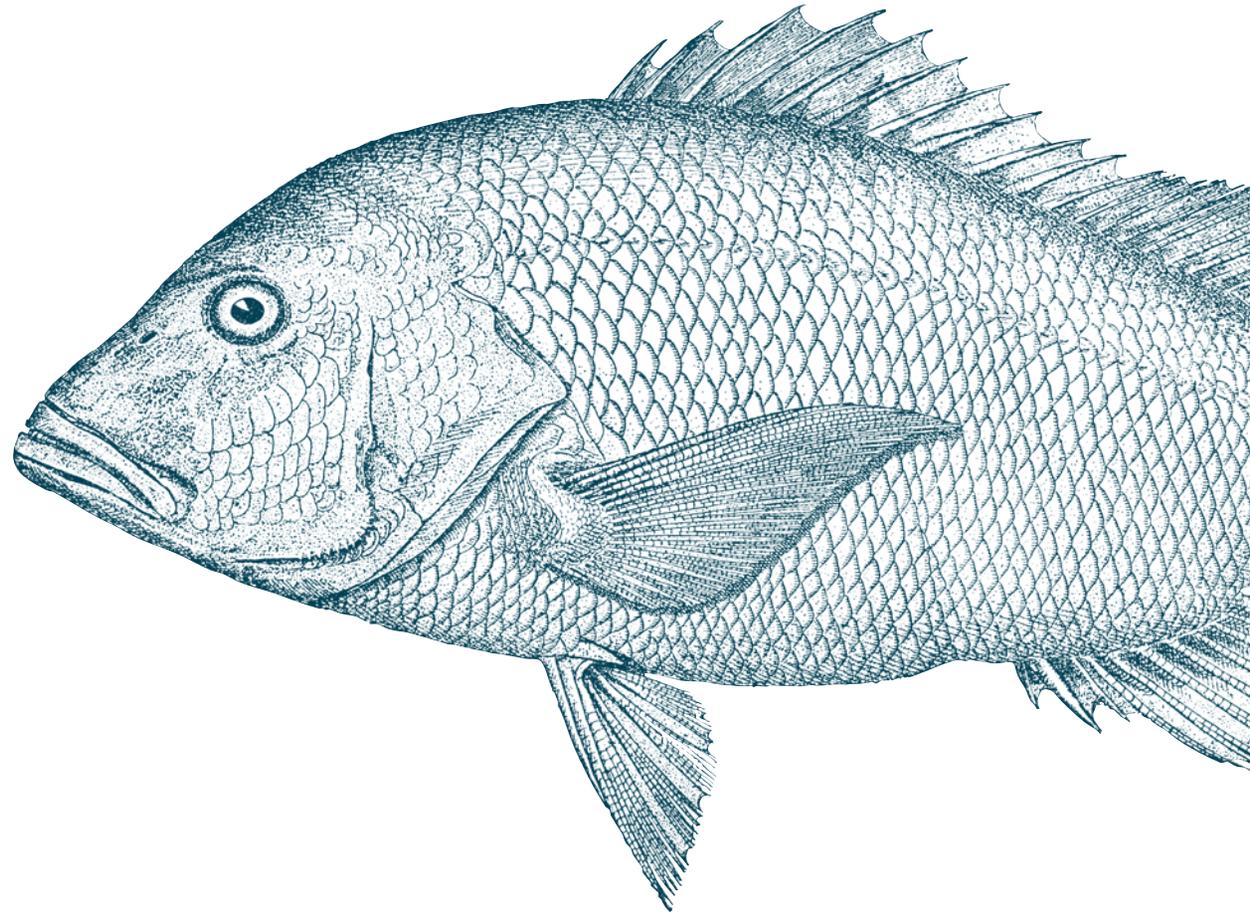
3 Bannick M., Goldman P.; “Priming the Pump: The Case for a Sector Based Approach to Impact Investing”; 2012; [http://www.omidyar.com/sites/default/files/file\\_archive/insights/Priming%20the%20Pump\\_Omidyar%20Network\\_Sept\\_2012.pdf](http://www.omidyar.com/sites/default/files/file_archive/insights/Priming%20the%20Pump_Omidyar%20Network_Sept_2012.pdf)

4 Koh H., Karamchandani A., Katz R.; “From Blueprint to Scale: The Case for Philanthropy in Impact Investing”; April 2012; <https://www.mim.monitor.com/blueprinttoscale.html>

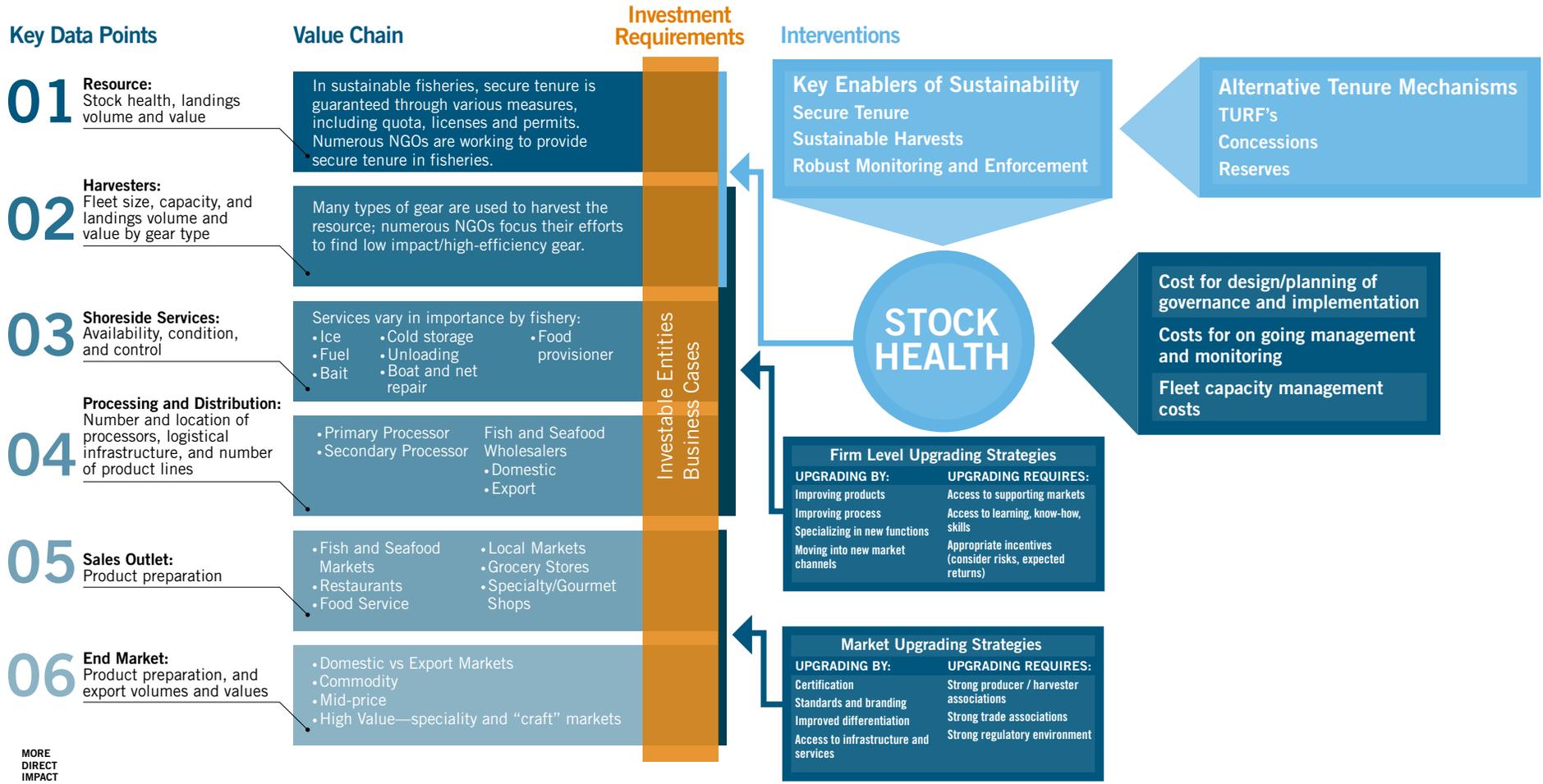
5 Holmes, L., Strauss, C. K., de Vos, K., Bonzon, K.; “Towards Investment in Sustainable Fisheries: A Framework for Financing the Transition”; 2014, EDF and ISU; [http://www.50in10.org/wp-content/uploads/2014/07/fisheries\\_handbook.pdf](http://www.50in10.org/wp-content/uploads/2014/07/fisheries_handbook.pdf)

The Omidyar and Monitor models are extremely useful if and where enterprise opportunities exist and a pool of talented entrepreneurs or SMEs are working on solutions. In the absence of these participants, these models are difficult to apply. The EDF/ISU framework is a very useful benchmark for assessing fisheries, and combining it with the USAID value chain approach significantly enhances its utility. The latter allows practitioners to be very specific with regard to identifying constraints and opportunities and permits funders to assess and prioritize intervention strategically.

While each had merits, our ultimate findings rested on utilizing a combination of the EDF/ISU framework and the USAID value chain approach. Indeed, we found the value chain approach critical to understanding the specifics of how to achieve many of the key elements identified in the EDF/ISU framework.



# Integrated Framework



MORE DIRECT IMPACT

Actions taken at levels with darker colors are associated with more direct impact on the resource; the farther from the resource the action is taken, the more indirect and harder to trace the impact will be.

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SOURCES:  
 USAID Value Chain Development wiki, <https://www.microlinks.org/good-practice-center/value-chain-wiki>

Holmes, L., Strauss, C. K., de Vos, K., Bonzon, K.: "Towards investment in sustainable fisheries: A framework for financing the transition"; 2014; Environmental Defense Fund and The Prince of Wales's International Sustainability Unit; [http://www.50in10.org/wp-content/uploads/2014/07/fisheries\\_handbook.pdf](http://www.50in10.org/wp-content/uploads/2014/07/fisheries_handbook.pdf)

# Findings and Recommendations

## POTENTIAL IMPACT INVESTMENT OPPORTUNITIES

The key constraint to investing impact capital in each of the fisheries was the lack of TBL entities. With the exception of the Baja California lobster cooperatives (a subset of the Baja multi-species fishery in Mexico) and a number of emerging California, U.S. based opportunities, we were unable to identify a model or an organization with an effective solution to this issue. This “pioneer gap,” in and of itself, is indicative of the challenge and points to the likelihood that a policy change is needed, particularly in DCFs.

Table 1 aggregates identified potential investment opportunities and their impacts as assessed at the time of review, the majority of which are designed around a “good middleman” or aggregator model. No group focuses directly on addressing all aspects of TBL returns. While a number of U.S. opportunities are emerging, they depend on successful implementation of the quota system on the West Coast to ensure their conservation outcomes. They do not directly engage in securing conservation outcomes. Notably, the only DCF opportunities focused on achieving conservation outcomes at the time of the review were non-profit entities.

## SUSTAINABLE VALUE CHAIN CONSTRAINTS

Our assessments revealed six main constraints to sustainable seafood investments: data, management, market differentiation, infrastructure, finance and a lack of investable entities at the harvester level. Prioritizing efforts to address these constraints, at the same time as the key enablers, are imperative to ensure successful achievement of TBL outcomes at the enterprise level.

**TABLE 1**  
**AGGREGATED “INVESTMENT” OPPORTUNITIES AND TARGETED IMPACTS**

	VALUE CHAIN POSITION / ROLE	FINANCIAL, LIVELIHOODS AND CONSERVATION	FINANCIAL ONLY	FINANCIAL AND LIVELIHOODS	LIVELIHOODS AND CONSERVATION
Baja area, MX	Aggregator		2		1
California, U.S.	Aggregator	5*			
Indonesia	Aggregator			3	
Indonesia	TA				2
Indonesia	Finance		1	1	

\*Due to IFQ system

## Data Gaps

To effectively attract more than philanthropic capital, harvesters, potential impact investors, and sustainability financiers need to be able to realistically assess risk and return. This is particularly true in the DCFs, where poor data extends throughout the value chain. Quality data is less of an issue in the U.S. example, where strong resource, harvester, and first receiver data exists, is accessible, and useful for assessing risk. However, the U.S. fishery lacks useful end market data.

Further complicating the data issue is the inconsistency from fishery to fishery, and often within the same fishery. Even with the presence of the same NGOs working at the same levels of the value chain in the fisheries, data remains inconsistent with no obvious efforts by any groups to coordinate data collection. This may be efficient in the short-term, but not in the long-term.

A key concern at the resource level was lack of a reliable, trusted and robust mechanism to share stock health data with all value chain participants, particularly in DCFs, and to a limited extent in some U.S. fisheries. In locations where participants do not trust the data or the providers of the data, significant management challenges arise.

All value chains, including the U.S., suffer from the lack of quantified end market data. Despite the growth and attention given to certification and sustainability programs, little market segmentation data or differentiation research related to costs and benefits is available to the value

chains. End market research to quantify demand and document attributes will provide value chain participants with the necessary basis to determine the value of certification programs, and of differentiating products through sustainability initiatives.

Quantified market data will also be useful to a range of funders—philanthropic as well as return seeking—to assess the viability of, and prioritize potential for, investment opportunities associated with improved management.

**Recommendation:**  
Government and philanthropic capital should provide leadership to improve data quality, consistency, and accessibility to clearly communicate the size and scope of market opportunities and stock health opportunities, respectively. Ensuring consistent data across fisheries should be a priority.

**TABLE 2**  
**KEY INFORMATION GAPS IDENTIFIED ACROSS VALUE CHAINS**

	BAJA, MX MULTI- SPECIES	INDO TUNA/ SNAPPER	INDO BSC	CA, U.S. GROUNDFISH	AVAILABLE DATA IS CONSISTENT ACROSS FISHERIES
Stock health	NA	A	NA	AR	N
Harvesting methods and practices	NA	A	A	AR	N
Catch locations	NA	NA	NA	AR	N
First receiver / landings data	A	A	A	AR	N
Costs and pricing at the harvester and processor levels	NA	NA	NA	AR	N
Infrastructure assessments	NA	NA	NA	NA	N
End market demand assessments	NA	NA	NA	NA	NA

**KEY**

AR: Available and reported as reliable | A: Available | NA: Not readily available or not available

## Management

### Missing Key Enablers

Secure tenure, sustainable harvests, and robust monitoring and enforcement are critical to the long-term health of natural marine ecosystems and the enterprises that depend on them. However, only the U.S. West Coast Groundfish fishery in California has established these three Key Enablers. The DCFs assessed had not made this switch, and in most cases, were still debating whether such a switch was necessary.

With the improvements in tenure, harvest management and robust monitoring and enforcement, the U.S. fishery has realized overall improved stock health, which is in stark contrast to the DCFs reviewed, where poor data and poor data access, open access fisheries, poor enforcement, and a lack of management were often compared to operating in the “Wild West.”

**Recommendation:**  
Efforts to directly link improved economic and social outcomes to implementation of the Key Enablers should happen simultaneously—a direct lesson from the U.S. West Coast Groundfish fishery in California example, where biological success has been achieved, but economic success is lagging.

**TABLE 3**  
**PRESENCE OR ABSENCE OF KEY ENABLERS, DRIVERS AND REQUIREMENTS USING THE EDF/ISU FRAMEWORK**

	BAJA, MEXICO		INDONESIA				CALIFORNIA, U.S.
	Lobster Coops	Multi-Species	BSC	Tuna Commodity	YF / SKJ Frozen / Fresh	Snapper	West Coast Groundfish Fishery
<b>KEY ENABLERS</b>							
Secure tenure	Y	N	N	N	N	N	Y
Sustainable harvests	Y	N	N	N	N	N	Y
Monitoring and enforcement	Y	N	N	N	N	N	Y
<b>KEY DRIVERS</b>							
Stock health	Y	N	N	N	N	N	Y
Operational efficiency	Y	N	N	N	N	N	N
Market value	Y	N	Y	N	Y	N	N
<b>KEY REQUIREMENTS</b>							
Business case	Y	Y	N	N	N	N	Y
Investable entities	Y	N	N	N	N	N	Y
Mechanism to capture return	Y	N	N	N	N	N	Y

Framework Source: Holmes, L. et al  
Notes: YF = yellowfin; SKJ = skipjack

## Market Differentiation

### Lack of a business case for sustainability

The additional costs associated with implementing potentially sustainable practices were not compensated in the value chains assessed, either through reduced costs or improved pricing power. Some participants indicated these differentiating practices were important for market access purposes, particularly the U.S., Australia or the EU. However, market differentiation is currently irrelevant for the large volumes of Indonesian landings in the tuna and snapper value chains consumed locally or exported to Asian markets. Similarly, competition between seafood exporters in primary import-dependent nations appears to be reducing pricing options.

This lack of a clear business case for differentiation through sustainability is compounded by harvesters and NGOs with strengths other than formulation of business cases for changes in practice, and by the open access systems, which incentivizes the “race to fish” over any effort to conserve resources or improve management.



## Recommendation:

**Efforts should focus on building the capacity of harvesters and harvester groups to *implement upgrades* in conjunction with the drivers of stock health that will set their product apart in the markets (i.e., differentiation). Equitable access to stock health and market data will be indispensable to harvesters when developing business models based on differentiation.**

## Infrastructure

### Access to appropriate infrastructure allows access to markets

Most value chains had some stakeholders with access to appropriate infrastructure, but these examples highlighted the lack of access that the majority of the value chain faced. For example, in Indonesia, access to ice and a buyer with adequate cold chain provisions makes the difference between a \$1 to \$2 per kilogram tuna and a \$4 per kilogram tuna. Without access to good infrastructure and shoreside services like ice, cold chain, unloading facilities, buyers and processors, many harvesters will not have access to higher value markets. Similar conditions exist in a number of U.S. West Coast ports in regards to the groundfish fishery, which impedes access to markets.

## Finance

### Limited active financial intermediaries

Almost all impact lenders interviewed across the fisheries expressed a high degree of willingness to engage in this market if they were able to find a way through the aforementioned constraints. However, given the nature of the pioneer gap, impact capital is unlikely to enter this market at scale until there is some agreement on a tested and proven model and a pool of viable investment opportunities.

Significantly, in the context of the capital needed to assure stock health through improved data collection, enforcement and management, none of the groups identified appears to be focused on developing a *sustainable fisheries management finance mechanism* (right side of the integrated framework on page 6). The few participants active in this market are focused on value chain finance (left side of the integrated framework) as opposed to financing that would improve fisheries management. This presents a major constraint in the development of a sustainable fisheries sector in DCFs.

### Investable Entities

#### Lack of TBL investable entities

A critical constraint to investing impact capital in each of the DCFs at the resource or the harvester level was the almost complete lack of TBL entities. With the exception of the U.S., where quota mechanisms are potentially investable at the resource level, there are limited investment opportunities at the resource level or the harvester level in international markets.

At the harvester level, all DCF value chains began with the aggregator as the first legal entity, effectively excluding harvesters from any economic activity other than as a provider of biomass. This is less of a concern in the U.S. fishery assessed, where harvesters are recognized as legal entities.

Cooperatives and small and medium sized enterprises (SMEs) have played an important role in the development of more equitable agricultural value chains. However, for a varying range of social, cultural, historical and political reasons, they do not appear to be an active part in the

DCF value chains evaluated with the notable exception of the Baja, Mexico, lobster cooperatives. Indeed, co-ops in DCFs appear to remain flawed vehicles for enterprise development, in part due to their governance structure and in part due to a history of poor management and political interference. There may be a business role for a developing cadre of permit bank associations in the U.S. West Coast Groundfish fishery, although this remains nascent.

Harvester horizontal self-organization for upgrading to improve efficiencies and capture increased market value was severely lacking, despite the presence of such opportunities in all the reviewed fisheries. Though less challenged than DCFs, the U.S. fishery was still subject to issues that prevent harvesters' ability to either improve efficiencies or capture market value.

This has resulted in the dependence on aggregators, AKA "middlemen," and first receivers of catch who are able to adopt upgrading strategies in response to market demands, and have captured market share as a consequence.

While there are many upgrading opportunities related to logistics and access to markets, we identified two significant risks:

- In the absence of effective management and controls, upgrading strategies are likely to lead to increased effort, as was experienced in agricultural markets.
- Upgrading strategies are capitalized upon by the aggregator or first receiver to the detriment of the harvester.



## Recommendation:

**Validate investable business models that effectively bring together harvesters to represent their interests. Building the capacity to develop viable business models, adopt upgrading strategies, improve efficiencies and access markets is a critical component of the long-term economic sustainability for the harvesters. Given the livelihood opportunities available in many fisheries, efforts to directly link improved economic and social outcomes to implementation of improved fisheries governance should happen at the same time.**

**Compounding this challenge, we were unable to identify any intermediaries or facilitators who could effectively fill this gap, particularly in DCFs. If implementing the Key Enablers and developing viable business models linked to improved management is a priority, this is an urgent need.**

### VALUE CHAIN AND DEVELOPMENT CAPACITY

Given the constraints documented in our assessments, as well as the lack of effective TBL models, a significant market gap exists in facilitating the development of viable, sustainable and investable models in the sustainable seafood supply chain. With the high need for self-sustaining financial models in wild capture fisheries, this gap is particularly critical. Without the necessary practitioners to develop and implement these opportunities, the market will continue to develop very slowly.



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## Recommendation:

**In order to accelerate the development of investable entities and build viable business cases for impact capital, the development of and support for practitioners skilled in understanding market based opportunities and value chain constraints should be supported with the same level of urgency as has traditionally been focused addressing the Key Enablers.**

# Development of a Pilot Solutions Portfolio

As our field research shows, this market is still in a very early stage of development, as depicted in table 4.

Significant risks continue to exist, not just within the value chain or in stock biology, but particularly around fisheries governance. As we have seen, developing sustainable seafood value chains requires simultaneously addressing a suite of issues. On the assumption that the Key Enablers are being addressed and that secure tenure is part of the solution, there are two kinds of value chain-based opportunities appropriate for impact investment support: the first designed to inform; the second designed to test and pilot potential models. The former “inform” interventions, which will provide information about conditions, opportunities and constraints, is most appropriate for grants. The latter, “test and pilot” interventions, while grant based initially, will integrate a design to transition to PRI opportunities with the idea that this work could lead to entities attractive to impact investors. Each is outlined in this section.

## GRANT-BASED OPPORTUNITIES TO PROVIDE INFORMATION NEEDED TO SMOOTH THE WAY

Rather than instigate direct investments, grant-based opportunities will inform current and potential value chain participants of the conditions, opportunities and constraints in the sustainable seafood value chain.

First, **end market demand assessments** will help all value chains assessed, including the U.S. As an example, despite the growth and attention given to certification programs, little market segmentation data or differentiation research is available to harvesters, processors or distributors to gauge the size of the target market and potential monetary returns for such certification efforts.

This value chain end market data for sustainable seafood products is a priority. In our research, we encountered numerous harvesters and aggregators who had access to sustainable seafood but did not understand the best ways to connect it to the market, including channels of

**TABLE 4**  
**STAGES OF THE CONSERVATION INVESTMENT LIFE CYCLE**

	EARLY-STAGE DEVELOPMENT	ESTABLISHMENT OF BUSINESS MODEL	REPLICATION/ SCALE-UP	COMMERCIALIZATION
<b>Regulatory policy, markets</b>	Development of regulation and market structures			
<b>Description</b>	<ul style="list-style-type: none"> <li>Pilot projects/proof of concept</li> <li>Experimental approaches</li> </ul>	<ul style="list-style-type: none"> <li>Single ecosystem projects</li> <li>Stable expectation of cash flows, risks and returns</li> <li>Government establishes regulatory framework</li> </ul>	<ul style="list-style-type: none"> <li>Multiple proven projects spanning a country, or replication of proven business model across multiple countries or ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>Tradable investments into conservation classes</li> <li>Investments into associated markets</li> </ul>
<b>Investment instruments</b>	<ul style="list-style-type: none"> <li>Venture philanthropy</li> <li>Ground-making equity/catalytic first-loss absorbing equity</li> <li>Grants/donations</li> <li>Seed funding</li> </ul>	<ul style="list-style-type: none"> <li>Project and early-stage finance</li> <li>Venture capital</li> </ul>	<ul style="list-style-type: none"> <li>Specialized investment vehicles (e.g., funds, feeder platforms)</li> <li>Equity investment</li> </ul>	<ul style="list-style-type: none"> <li>Market instruments (e.g., equity, bonds, options)</li> <li>Securitized cash flows</li> </ul>
<b>Investors</b>	<ul style="list-style-type: none"> <li>NGOs</li> <li>Grant-making trusts</li> <li>Venture philanthropists</li> <li>Development banks</li> </ul>	<ul style="list-style-type: none"> <li>Venture philanthropists</li> <li>Development banks</li> <li>NGOs</li> <li>HNWIs</li> </ul>	<ul style="list-style-type: none"> <li>Large-scale NGO JVs</li> <li>Development banks</li> <li>HNWIs</li> </ul>	<ul style="list-style-type: none"> <li>Institutional investors</li> <li>Retail investors</li> <li>HNWIs</li> </ul>
<b>Investment profile</b>	<ul style="list-style-type: none"> <li>Very high risk compared to similar investments in other sectors</li> <li>Very illiquid</li> <li>Uncertain recovery of principal</li> </ul>	<ul style="list-style-type: none"> <li>High risk</li> <li>Medium investment horizon possible</li> <li>Possibly high IRR upon exit</li> </ul>	<ul style="list-style-type: none"> <li>Medium risk</li> <li>Long-term, stable returns</li> <li>Long investment horizon, rather illiquid</li> </ul>	<ul style="list-style-type: none"> <li>Low risk compared to similar investments in other sectors</li> <li>Liquid</li> </ul>

Source: CS/WWF/McKinsey

distribution, pricing options, geographic locations of their potential end markets and associated logistical costs, or key attributes (packaging requirements and costs) and features (should it be marketed as “local,” “sustainable,” “artisanal,” etc.).

Groups like the Fort Bragg Groundfish Association would greatly benefit if they knew, for example, if there was a viable, alternative market for Dover sole discards; if chefs in the San Francisco area are looking for 100 lbs of “local” fish per week priced at \$4/lb in 8oz portion sizes or if markets in Berkeley could buy 200 lbs of “sustainably caught, low mercury” frozen fillets at \$5/lb every two weeks.

Facilitating the development of this information will, at worst, serve as a baseline for whether such demand exists and how it can be quantified. At best, it will encourage existing firms to engage in the sustainable seafood market, as well as potentially attract new investors.

Second, detailed **business case feasibility assessments** would assist existing or new firms as well as potential investors in considering investment opportunities. Specifically, this type of assessment would show what species, product types and lines of business are sustainable and profitable, what’s not, and under what conditions. For example, it would help in understanding the importance of a “portfolio” of species in supporting profitability, or understanding the utility of MSC certification and the potential additional revenue gained by doing so. This type of assessment does not appear to be commonly available or understood by many of the groups seeking to align the seafood value chain with sustainability.

Third, **standardized data sets, particularly in DCFs**, are critical for facilitating discussions around stock health, sustainable harvests and value. Specifically, consistently collecting data for fleet size and location, landing volumes, prices paid by first receivers, location of catch and sizes of the fish, and the country where the fish is ultimately consumed would be invaluable for management, monitoring and enforcement, as well as for value chain participants and investors. Equally important is the establishment of a trusted mechanism to share stock health data, accessible for all value chain participants.

Fourth, support the development of a **sustainable fisheries management finance models**. This relates to the capital needed to assure stock health through improved data collection, enforcement and management on the right side of the value chain framework (see page 6). Given the importance of this function, and the fact that it does not appear to be an area of focus or investigation, this should be a priority. Efforts would focus on: building an understanding of what is meant by and required for effective fisheries management; developing an understanding of the budget and financial implications and opportunities; developing strategies to realign existing capital flows to address these requirements and to link value chain improvements to fishery management finance; and, if possible, structuring acceptable repayment mechanisms.

## GRANT OR PROGRAM-RELATED INVESTMENTS TO TRIPLE BOTTOM LINE ENTERPRISES

Due to the dearth of existing models from which to learn, innovative pilots that link stock health and value chain improvements warrant support from philanthropies and impact investors. Investing in these pilots will remove the high financial hurdle for entrepreneurs, mitigate some of the associated financing risks and allow for the development of and support for enterprises that create benefits for communities and the environment.

Interventions to **test and pilot concepts designed to improve stock health** through improved fisheries management such as TURFs, fishery reserves, and concessions linked to improved value chain business cases remains challenging. Unfortunately, no one has successfully linked these disciplines to date.

**Product and firm level upgrading pilots**, which address constraints at different levels of the value chain, can move forward at the same time or at staged intervals depending on the conditions within the fishery and the value chain. In some locations, each could take place concurrently, providing upgrades at multiple levels of the value chain at the same time. For example, contingent upon stock management improvements, some Mexican fisheries products should be upgraded to a higher quality through a more consistent use of ice at the harvester level AND through quicker transport to market at the aggregator level, i.e., concurrent product-level upgrades at different levels of the value chain.

**Distribution and market level pilots** would build off the outcomes of the market demand assessments, (see page 13). These differ from the “product and firm level” upgrades in that they target a level of the value chain closer to the end consumer. They would also ensure access to appropriate infrastructure like hoists for groundfish trawlers or ice and freezers based on profitability as determined by data from the market demand assessments. Ideally, these models would incorporate or incentivize any needed changes on the water into their design. Practically speaking, this kind of intervention **should formalize and strengthen horizontal relationships**, like bringing together harvesters, as done by the Fort Bragg Groundfish Association or bringing together producers through APR I in Indonesia. Pilots like this would help harvesters and producers analyse profitability regarding infrastructure development or access, provide capital for marketing, and possibly provide funding for appropriate certification.

**TABLE 5:  
FIRM LEVEL UPGRADING STRATEGIES**

### UPGRADING BY:

Improving products

Improving process

Specializing in new functions

Moving into new market channels

### UPGRADING REQUIRES:

Access to supporting markets

Access to learning, know-how, skills

Appropriate incentives (consider risks, expected returns)

Source: USAID



## Recommendation:

**The pioneer gap demonstrates a need for philanthropic capital to experiment and pilot business models capable of achieving triple bottom line outcomes. We do not believe the challenge is a lack of capital, but rather the willingness to experiment and failure of this market to develop suitable models and investable entities. We believe a focus on these elements in collaboration with financial intermediaries will result in increased participation in this market. Philanthropic capital can play an important role in experimenting with and accelerating models in priority markets.**

Finally, we recommend that these pilots include artisanal harvesters, since they often bear the burden of conservation strategies, but program design excludes them from immediate benefits; developing **financial inclusion pilots for the very poor is essential**. Specifically, we suggest involving financial institutions to provide access to **micro savings and loans**, potentially digitally via mobile networks, along with access to appropriate infrastructure to preserve quality and reduce waste, in exchange for conservation measures such as complying with TURFs, no take areas, size limits and similar measures, depending on the fishery. Potential options include:

- **Microfinance tied to conservation outcomes:** small loans to fishers in exchange for improved conservation practices, restrictions on activities, gear change, support for management improvements or all of the above.
- **Working capital tied to conservation outcomes:** product-upgrading loans to “good middlemen” in exchange for minimum size and seasonal closure support.
- **Patient capital tied to reduction of effort:** seed funding for reduction of effort initiatives tied to future improvements resulting from biological recovery.

**TABLE 6**  
**PROPOSED PILOT SOLUTIONS PORTFOLIO**

\*

<b>ADDRESS STOCK HEALTH CONSTRAINTS</b>			
	<b>Targeted Outcome</b>	<b>Purpose</b>	<b>Examples</b>
INFORM AND FACILITATE	Market demand assessments	Understand market demand drivers for products to evaluate financial value of certifications, branding, etc.	California, U.S., end market demand assessment (proposed)
	Defined business cases	Build firm level VC* participation in sustainably sourced seafood	Market demand assessments
		Assess business feasibility of interventions	Pilot, document and share viable triple bottom models, e.g., Smartfish
Develop market level upgrading strategies	Build fishery level VC* participation in sustainably sourced seafood	Market demand assessments Business case for differentiation, standards and branding, certification	
PILOT	Clearly defined data requirements	Assess stock health for management and investment risk assessments using consistent data parameters	Potentially, MBA Seafood Watch data points National and local fisheries management, potential investors, harvester groups and first receivers would provide input to determine datasets, feasibility and implementation.
	Secure monitoring	Feeds into the data requirements; Provide data inputs for managers and value chain participants	Vessel Monitoring Systems (e.g. Pelagic Data Systems) IFish in coordination with IMACS, MDPI, and KKP
	Sustainable harvests	Address governance constraints to effective management	Quota based catch share initiatives
		Sustainably manage resource	
Secure tenure	Reduce leakage	Informal and/or communal mechanisms to provide economic incentive for stewardship at a fishery or national level: Local and/or regional TURFs Reserves Concessions Provide economic incentives for stewardship in areas of strong gov. support: Sovereign fishery management initiatives	
<b>ADDRESS VALUE CHAIN CONSTRAINTS</b>			
PILOT	Financial inclusion	Create value and prove the triple bottom line case for inclusion through: <ul style="list-style-type: none"> <li>• BOP strategies for inclusion</li> <li>• Models utilizing micro-lending and savings focused around very poor in emerging and frontier markets</li> </ul>	No partners or examples identified at this time in DCFs
	Develop pilot firm level upgrading strategies	Validate upgrading strategies tied to conservation and social outcomes through triple bottom line models	No partners or examples identified at this time
		Pilot secure livelihoods models	Double bottom line models, e.g., Blue You and Anova
	Share analysis of model outcomes for field building		

\*VC = Value Chain

# Conclusion

Given the investments in developing sustainable fisheries pilots, we expected to have identified a range of investment opportunities in each of the fisheries assessed, from pre-blueprint all the way to scale, some for small-holders, others medium-sized enterprises, and each would have strong TBL impacts delivered by solid, investable entities.

However, we did not find investment opportunities that could address the suite of challenges associated with improving financial and social outcomes, while also contributing to conservation outcomes, particularly in the DCFs. Our research indicates that this is due to six main constraints to an economically sustainable fisheries value chain—**data, management, market differentiation, infrastructure, finance** and the **lack of investable entities**.

Thus, while there are impact investors interested in these markets, and there are a number of livelihood opportunities for investment, there are few to no entities ready to take on investments that are capable of achieving a TBL outcome, similar to examples in the agricultural markets. **In reality, investing in the open access, wild capture DCFs for only economic and/or social outcomes is likely to exacerbate and accelerate both the degree and rate of fish extraction.**

Conditions in the U.S. West Coast Groundfish fishery in California are an important and relevant counterpoint to the DCFs assessed. Harvesters who have successfully navigated the management changes and accessed necessary infrastructure and markets have seen improved economic outcomes. However, for the majority of this fishery, despite the improvements at the resource level, the challenges faced by the harvesters remain consistent

with DCFs due to their lack of access to appropriate information, infrastructure, and markets.

Looking across the value chains assessed, taking action on solely one point, such as improving data management, has not instigated a cascade of solutions toward sustainability. In fact, the data shows that all six sustainable value chain constraints—data, management, market differentiation, infrastructure, finance, and the lack of investable entities—must be addressed simultaneously to move toward investable, self-sustaining fisheries. Similarly, linking the value chain approach to the EDF/ISU framework allows for a data-driven, market focused approach in selecting, prioritizing and implementing interventions.

Ultimately, developing sustainable seafood value chains means developing a portfolio of solutions. On the assumption that the Key Enablers are being addressed and that secure tenure is part of the solution, there are two kinds of value chain based opportunities appropriate for foundation-type support: the first will **inform value chains** by providing information about the conditions, opportunities and constraints and is most appropriate for grants; the latter will **test and pilot models** in seafood value chains that are based on successful innovations in other value chains. The “test and pilot” work is also appropriate for grants and, we anticipate, program-related investment, which could lead to triple bottom line entities attractive to impact investors.

In the end, success hinges on whether the stakeholders are willing to work together and, most of all, put in the hard work needed to address all the constraints.

## About Us

Wilderness Markets is working with a range of philanthropic and impact investors to assess sustainable seafood markets in order to facilitate the development of conservation focused impact investment opportunities in fisheries globally.

With the support of the David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation, we have had the opportunity to assess four fisheries in Developing Country Fisheries (DCFs) and two U.S. fisheries in order to identify and assess the constraints preventing impact capital from accessing this market. At the same time, we identified potential investment opportunities within these fishery value chains.

Our work over the past two years has taken us through the New England groundfish fishery (U.S), a multi-species value chain in Baja California, Indonesia's value chains for yellowfin and skipjack tuna, blue swimming crab, and red snapper and the West Coast groundfish value chain in California (U.S). These fisheries were assessed against a common set of frameworks in order to maintain consistency, with an overall focus on development and improved economic outcomes for harvesters.

Wilderness Markets clients include the David and Lucile Packard Foundation, the Gordon and Betty Moore Foundation, the Environmental Defense Fund, The World Bank Group and others.

Learn more about us [www.wildernessmarkets.com](http://www.wildernessmarkets.com)

## About Our Funders

### **THE DAVID AND LUCILE PACKARD FOUNDATION**

For more than 50 years, the David and Lucile Packard Foundation has worked with partners around the world to improve the lives of children, families, and communities—and to restore and protect our planet.

### **THE GORDON AND BETTY MOORE FOUNDATION**

The Gordon and Betty Moore Foundation fosters path-breaking scientific discovery, environmental conservation, patient care improvements and preservation of the special character of the Bay Area. Visit [www.moore.org](http://www.moore.org) or follow @MooreFound.

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- **Associations:** Jeremy Crawford, Ed Rhodes, Brendan Sweeny and Rob Kragh of the NFI Crab Council
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