



Peru National Level Fishery Traceability Recommendations



About Future of Fish

Future of Fish is a nonprofit that provides research, design, and business services to organizations and entrepreneurs accelerating sustainability and traceability in seafood supply chains.
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Country-Level Traceability:

Context & Current State

The Global Challenge

The last few years have witnessed emerging national level laws and policies around the world that are shaping the market space for traceable seafood through data-driven regulations. At the same time, seafood companies are under increasing international pressure to make and meet commitments to sustainable and socially responsible practices—a lift that requires increased levels of traceability and transparency in seafood supply chains to identify weaknesses and track improvements.

While this momentum is building around the world, governments and seafood industry response is varied, with many regions, including Peru, having limited movement to date. However, even where efforts to implement better data systems or traceability do exist, both supply chain and government systems are frequently fraught with inefficiencies, redundancies, and data errors stemming from paper-based record-keeping and/or poorly designed systems. Such outdated systems perpetuate fisheries mismanagement and Illegal, Unreported, and Unregulated (IUU) fishing activities.

The need for stronger fisheries management to end overfishing and fight IUU goes hand in hand with the need for modern and integrated data systems in both government and industry sectors. For industry, this means building information systems that can effectively trace the journey of a product back to its point of origin, as well as track the movement of a product forward through the transformations and transactions it undergoes before reaching the final consumer. For governments, fisheries data systems need to be able to receive fisheries dependent (and independent) data and effectively analyze and act on the information it generates to inform better management and provide valuable information back to industry. Data related to species, catch location and date, gear type, vessel name, certification, and any other relevant information must be linked to the fish at the time of harvest, and the integrity of that data must be preserved as it is shared with government agencies and multiple nodes in a supply chain.

The path to improved data systems and traceability will require more than just technology upgrades. In fact, piecemeal adoption of technology without a holistic plan for how to integrate and analyze newly generated data often creates more problems. Robust design, in addition to new software and hardware integration, is key to success. Attention to human elements (e.g. relationship dynamics, learning curves) is also essential. This document

Abbreviations

EU

European Union

FDA

Food and Drug Administration

FDM

Fishery Development Model

FIP

Fishery Improvement Model

FOB

freight on board

FOF

Future of Fish

HACCP

Hazard analysis and critical control points

IATTC

Inter-American-Tropical-Tuna-Commission

IT

Information technology

ITP

Technological Institute of Production

IUU

Illegal Unreported and Unregulated

MEY

Maximum Economic Yield

MSY

Maximum Sustainable Yield

provides recommendations for driving traceability and data improvements in both industry and government sectors in Peru considering technology and human design elements.

Peru: Policy Drivers and the Domestic & Export Markets

Peru is a complex nation-state rich in natural resources and ecosystems including 1,900 miles of coastline, the high andes, and a portion of the amazon basin that makes up more than 60% of the nation's territory. Peru's fisheries are home to approximately 250 capture species¹, with per capita seafood consumption at around 14.5 kilos/year, totalling approximately 461,000 metric tons in 2017². Locally caught and consumed seafood is a major part of Peruvian culture, and a growing part of Peru's reputation as a world-class gastronomic destination. However, today, the lucrative industrial anchoveta industry stands out as a rare example of a relatively traceable Peruvian fishery; the vast majority of Peru's fisheries are not or are only partially traceable.

In the domestic market, the lack of traceability is due in large part to an absence of demand for traceable product combined with logistical capacity barriers. The majority of domestic seafood passes through large regional markets, such as villa maria outside of lima. These markets serve as aggregation points, where product fidelity is often lost on the way to restaurants, supermarkets, and smaller local markets. The combination of logistics and lack of incentives to track product origin have resulted in a largely opaque domestic seafood supply chain in Peru. For example, 50% of all mahi mahi currently caught in Peru (25% of the world's supply) remains in-country, but where this product ends up is unclear³. Recent investigations into fish fraud found that a high percentage of mahi, corvina and other species were sold under the names of other domestic, preferred species, suggesting that a portion of this lost catch winds up on Peruvian plates⁴. In addition, government data collection on domestic products tends to prioritize a few key species and lump many of the rest into broad categories, such as "benthics." Thus, official statistics are difficult to navigate when trying to determine species-level catch or trade data for some species.

For export fisheries, other challenges emerge. Despite sophisticated ERP (enterprise resource planning) systems in many processing/export facilities, "massaging" of fisheries data—especially in the first mile (from fishers to exporters) of data capture—is common in Peru⁵. Yet, new import requirements, especially by the U.S. and EU, have placed political and economic pressure on the Peruvian government. Implementing national mechanisms

MSC

Marine Stewardship Council

MT

Metric Tonnes

NCI

Naturaleza y Cultura Internacional

NGO

Non-governmental Organization

NOAA

National Oceanic and Atmospheric Administration

PNACP

Programa Nacional A Comer Pescado

PSMA

Port States Measures Agreement

SFP

Sustainable Fisheries Partnership

SIMP

Seafood import monitoring program

USA

United States of America

USD

United States dollars

WWF

World Wide Fund for Nature

1. IMARPE. 2019. *IMARPE Atlas of Artisanal Fishing*. <http://biblioimarpe.imarpe.gob.pe:8080/handle/123456789/3166>

2. Intrafish. 2018. *Peru seafood consumption increases year-on-year*. <https://www.intrafish.com/news/1461931/Peru-seafood-consumption-increases-year-on-year>

3. Amorós et al. 2017. *Peruvian mahi mahi fishery (Coryphaena hippurus): characterization and analysis of the supply chain*. http://d2ouvy59p0dq6k.cloudfront.net/downloads/mahi_mahi_value_chain_en.pdf

4. Marin et al. 2018. *A glimpse into the genetic diversity of the Peruvian seafood sector: Unveiling species substitution, mislabeling and trade of threatened species*.

5. Mahi processors/exporters. May 2018. *Personal communication*.

to ensure compliance with new traceability import requirements are slowly becoming a reality for both industrial and artisanal sectors. In addition, momentum exists to improve fisheries management within Peru, including the recent world bank loan focused on artisanal fisheries improvements via the PNIPA program, and the rising culinary movement that is driving tourism and economic development around locally-derived food. While a past associated with corruption and enormous data gaps set a challenging stage, these emerging dynamics point to a ripe opportunity for creatively pushing traceability and data modernization in Peruvian fisheries, with some initiatives to do so already underway.

Peru's Traceability and Fisheries Data Systems & Emerging Initiatives

Numerous entities are involved in data collection and analysis in Peru relevant for traceability, many of whom struggle to assess or communicate relevant information with one another. In general, vessel and fisher registration is performed by DICAPI (Peruvian Navy); in the case of the artisanal fleet, DIREPRO (Regional Directorate of Production) is responsible for collecting origin data and regulating fishing permits with DCHD (Dirección de Consumo Humano Directo; Directorate of Direct Human Consumption) collecting the same data for the industrial fleet; IMARPE (Instituto del Mar del Perú) samples vessel and catch information at select landing sites; PRODUCE (Ministry of Production) records vessel and catch information for audit records; and the Direction of SFS inspects points along the supply chain to verify regulatory compliance. Artisanal and industrial boats have different reporting requirements, meaning they must submit information to different agencies, both regional and national, each with their own data collection methodologies. The result is a fragmented system home to a number of ongoing initiatives.

Policy

Industrial

Industrial fishing is regulated mainly under an Individual Vessel Quota (IVQ) system established and monitored by IMARPE, who utilizes fisheries-dependent data to estimate the total allowable catch (TAC) over which the IVQs are distributed. Traceability efforts in industrial fisheries in Peru are largely self-motivated and self-funded. This is mainly because the industrial sector is well-resourced, meaning they have the ability to take on more burden associated with the data collection and technology installations required to comply with associated policies. There is a significant amount of data collected by the industrial groups, although it currently remains siloed and generally inaccessible.

Artisanal

Management of the artisanal fishing fleets lags behind that of the industrial sector. Since 2006, the government of Peru has issued a series of regulations to try and prevent illegal fishing while promoting sustainable fisheries. However, these policies were passed without adequate provision of the resources needed (financial and human) to assist fishermen with compliance, nor to enforce these new policies. Artisanal fleets have the least capacity to meet these cumbersome requirements because they tend to have less available capital to invest in these required changes. Many artisanal fishers have stressed the fact that they simply cannot afford to comply with regulations that are being put in place. For instance, installing technology such as VMS (vessel monitoring system) is costly. This has led to a situation in which over 50% of artisanal fishermen are now considered informal or illegal due to lack of required documentation or technology⁶. For instance, some mahi mahi and squid fishers have noted that changes in stock location in recent years have forced them to extend their average trip length to close to 15 days or more, compelling vessel owners to illegally build larger boats that are needed to handle deeper, offshore waters and store enough product to make longer trips worthwhile. Additionally, those boat owners who were able to meet the 2010 deadline for decreased boat size have still struggled to receive the required certificate of approval of plans or construction license within the prescribed time period.

In an effort to combat an increasingly informal and illegal system, in 2016 and 2017 PRODUCE issued two additional regulations to promote the formalization of artisanal fisheries. One law created the artisanal fishing formalization system (SIFORPA I), which is an electronic tool specifically geared towards the formalization of fishing vessels of up to 6.48 gross tons, and has, to date, facilitated the administrative process for the granting of numerous registration and fishing certificates. However, the Ministry of Production has not yet finished the verification phase of SIFORPA I or phase II, so it remains unclear whether the vessel dimensions reported are correct or if registered vessels actually exist.

A Supreme Decree was recently issued with the objective of strengthening the artisanal fishing sector and increasing the participation of ship owners and fishermen. In Piura, the communities of La Islilla and La Tortuga took advantage of this pilot program to legally form cooperatives, with assistance from WWF Peru. Simultaneously (and independently), a group of thirteen OSPAs in the region who oppose formalization through the cooperative system requested PRODUCE provide other options for formalization. In reaction to this request, PRODUCE passed Legislative Decree (DL) 1392 (SIFORPA 2) in 2018 to promote the formalization of artisanal fishing activities, particularly for those vessels larger than 6.48 gross tonnage and up to 32.6 m³ of storage capacity⁷.

6. Aronson. 2018. Peruvian Government Cracks Down on Illegal Fishing. <https://seafoodsustainability.org/2018/07/12/Peruvian-government-cracks-down-on-illegal-fishing/>

7. Guía práctica para el abordaje de conflictos en el sector pesquero artesanal

Emerging Initiatives

NGO-led Initiatives:

- **Global fishing watch (GFW):** As of October 2018, at least 1,300 of Peru's industrial fishing vessels, most of which were previously undetected by GFW's automatic identification system (AIS), are now visible on a public map. With appropriate support and training for enforcement, this information could aid national monitoring and control efforts, including combating IUU fishing.
- **WWF mahi mahi pilot:** IMARPE and the NGO WWF Peru collaborated on a project to implement a logbook traceability in the mahi mahi supply chain. Later, WWF developed a pilot including a multi-node traceability technology system comprised of Virtual Environment of Catches (ENVICAP), Trading Virtual Environment (ENVICOT), Virtual Environment of Processing (ENVIPRO), and Export (ENVIEX) components. After field verification, WWF designed a more robust phone app (TrazApp). WWF Peru should be contacted for more information.
- **Latin American Traceability Meeting, jointly held by WWF and PRODUCE:** Actors from six countries came together to reflect on the challenges and successes they have experienced in the implementation of traceability policy and technology within fishery supply chains. They resolved that more regional coordination needs to occur, especially when implementing traceability within artisanal fisheries and domestic markets.

Fishery Improvement Projects (FIPs): There are currently two active FIPs in the Peruvian mahi mahi fishery: an industry-led (Confremar) basic FIP launched in 2016 with a *FisheryProgress.org* rating E and at Stage 4, and WWF Peru's NGO-led comprehensive FIP launched in 2013 and with a current progress rating a and at stage 4. Both FIPs are focused on addressing the lack of regular stock assessments and need for stronger harvest control rules, with WWF Peru's FIP more deeply involved in developing stock models and harvest control rules, and Confremar's FIP focused on gathering industry support and compliance with the new rules as they are rolled out by the RFMO (Regional Fishery Management Organization) and others.

Government initiatives:

- **Sistema de Seguimiento Satelital de Embarcaciones (SISEAT):** Peru's ship satellite tracking system, SISEAT, is run by the General Direction of Sanctions, Supervision, and Fines (DGSFS) office, and is used to monitor the spatial distribution of industrial fishing fleets including anchoveta, hake, and squid. The system was implemented in Peru at the beginning of 2001 for the purpose of analyzing fleet distribution dynamics and resource variability. SISEAT use will soon be expanded to mahi mahi, which is an exclusively artisanal fleet.
- **Sistema de Trazabilidad Satelital (TRASAT):** Created by PRODUCE, TRASAT allows users to visualize the positioning of fishing vessels monitored by satellite. The general service is available to all users, and is published by PRODUCE on a public web portal.
- **Monitoreo con Senal Satelital (SIMTRAC):** The Aquatic Traffic Information

and Monitoring System (SIMTRAC) uses an AIS system to determine the position, course, and speed of foreign ships. Information is regulated by the International Maritime Organization (IMO).

- **Imágenes de Píxeles de Luminosidad del Satélite SUOMI:** Nocturnal images provided by the Japanese satellite Suomi NPP show the location of the foreign squid fleet operating in international waters adjacent to the Exclusive Economic Zone (EEZ) of Peru.
- **SITRAPESCA:** Project to automate data produced through disembarkation, processing, transport, and commercialization, including certificates of origin for anchovy. Created by the General Direction of Supervision, Fines, and Sanctions (DGSFSPA), who is coordinating with other government offices and industry actors.
- **IMARSIS:** IMARSIS is IMARPE's internal information database, containing the sampled capture and environmental data from along the Peruvian coast. Landing samples are collected on paper, then transferred to an excel format, which is then shared with the internal it office to be uploaded into the central database.

Industry initiatives:

- **CERPER:** Certificaciones del Peru is a private company that offers inspection services, sampling, testing, product certification, and management systems. They supervise and certify fishmeal/fish oil (FMFO) exports, frozen fisheries products, and canned or cured products destined for both domestic and international markets. CERPER also monitors landing sites used by industrial anchoveta fleets (in coordination with PRODUCE inspectors) along the Peruvian coast.

The energy and resources supporting these various systems and initiatives in Peru is substantial. The problem is, most of these efforts and their associated systems are uncoordinated, resulting in redundancies and inefficiencies. In addition, isolated systems remain opaque, preventing opportunities for cross-verification and fomenting suspicion about the accuracy of data collected and analyses conducted. Overall, this lack of coordination of existing efforts likely slows analytics and delivery of fisheries intelligence data that could support better management. It could also potentially serve as an incentive to more effectively engage fishers and supply chain players to collect and share their data.

Barriers to Traceability Adoption and Data Modernization

This high level fragmentation of efforts and data systems is one of several barriers that currently hamper traceability and data modernization efforts in Peru. Several species-level barriers to traceability adoption and potential solutions are identified in our *Mahi Mahi* and *Benthic* Blueprints. To address these issues at a national level, we looked for common or shared fisheries-level challenges that impact traceability and data modernization efforts in particular. These “national traceability barriers” are listed in **Table 1**, along with examples of how those barriers manifest at the fishery level. This

analysis also helps to surface insights—which provide greater understanding of how the system functions as a whole, and point towards where there is opportunity for creating change.

Table 1. List of national and fisheries-specific barriers to traceability and data modernization in Peru. Insights associated with these barriers are also provided.

National traceability barriers	Fisheries-specific barriers	Insights
Lack of trust in data collection efforts	<ul style="list-style-type: none"> * Experiences with corruption and changing administration means trust is low * Limited communication between local actors and regional and national government hinders intervention efficacy * Lack of data collection transparency * Perceived data fraud by multiple actors in the system 	System is in need of a neutral, third-party to facilitate dialogue and serve as an “honest broker” between these two sectors.
Lack of trust and positive incentives for collaboration lead to misaligned and uncoordinated efforts across sectors	<ul style="list-style-type: none"> * Misalignment in incentives between regional and national governments hinders coordination * Lack of common definition between actors has led to misconceptions, for example regarding sustainable or responsible management * The coordination between regional and national governments involved in formalization produced a slow and unwieldy process 	System is in need of a neutral, third-party to facilitate dialogue and serve as an “honest broker” between these two sectors.
Data is not centralized and lacks a common language	<ul style="list-style-type: none"> * Data is present but difficult to access due to collection silos or policy barriers * Uncertainty of stock statuses generates confusion about resource health & abundance * Historic tensions between actors promote fragmentation of data. * Data collection processes are not standardized to ensure quality and communicability 	Tech infrastructure and capacity-building are necessary to create and define mutually agreed upon data-sharing protocols.
Need for articulated information systems is not recognized nor valued	<ul style="list-style-type: none"> * Quality issues hinder market maximization * Opportunism drives innovation at the expense of long-term success * Poorly created & executed formalization process acts as a barrier to data collection & management * Restaurants say they want sustainable product, yet the price is most important * Powerful players protect status quo 	Demonstrate short-term benefits of participating in information systems to incentivize initial buy-in.
Diversity and dynamics of fisheries require more sophisticated systems—across infrastructure, data, and policy	<ul style="list-style-type: none"> * Leadership turnover thwarts pilot/project longevity * Fishers lack direct access to markets due to logistical, financial, & capacity limitations * Biology drives unpredictability in catch 	Improved tech infrastructure and increased capacity-building are necessary to create systems capable of adapting to complex, multi-stakeholder needs.
Illusion of progress prevents urgency in the issue of poor fisheries data	<ul style="list-style-type: none"> * Little emphasis on data capture from domestic supply chains * Data fraud is occurring in the system * Multitude of data initiatives but unfortunately these are not synced nor aggregated 	Make traceability/data gaps relevant by tying to issues people care about (e.g. quality).

Recommendations

The following recommendations are intended as a guide for how to effectively structure potential interventions that can drive traceability and modernized data systems in support of sustainable, responsible, trustworthy fisheries in Peru. We intentionally aimed to identify **system** or **enabling** level solutions—by definition these are not specific to a particular fishery or supply chain, but are opportunities that could directly drive traceability or data modernization across multiple fisheries or stakeholders, or prime the system to be able to receive programs and initiatives that can move traceability and data modernization forward. We organized recommendations according to their application to strategy and design, and identified four strategic-centered and five design-focused initiatives. For each recommendation, we note the underlying problem (“The Rationale”), intervention ideas (“What This Could Look Like”), and challenges acknowledged (“Barriers Addressed”).

External assistance may be particularly necessary for artisanal fishers, as community members tend to be at a disadvantage for traceability adoption and support. While their participation is critical to successful, sustainable traceability systems, artisanal fishers frequently lack resources and training; this is further complicated by the sheer diversity and number of fisheries and communities. Artisanal fishers also face a number of unique challenges not found in the industrial sector, such as lack of capital, lack of experience with emerging technologies, difficulty in finding or establishing direct relationships with chefs and restaurants, or simply the location of and access to resources.

Strategies

Leverage the gastronomic movement to grow demand for quality, traceable seafood

Rationale: Peru’s growing international reputation as a gastronomic center has fueled interest in more creative, locally-based food traditions—an interest that could be harnessed to support increased traceability of Peruvian seafood. As chefs look to innovate and seek ways in which they can craft more original, unique dishes, they could benefit from information accompanying these products to protect their brands from fraud or illegal sourcing.

What This Could Look Like: Prioritize traceability pilots anchored in strong, story-driven supply chains that test new product forms and delivery systems; tie traceability efforts directly to product quality and traceability; create educational programs to directly connect chefs and fishers to learn about one another’s crafts and threats/needs around responsible sourcing; training for front-of-house staff to leverage story to drive sales; incorporate importance and uniqueness of quality, traceable seafood into international messaging from the tourism ministry.

Barriers Addressed: Need for articulated information systems is not recognized nor valued; illusion of progress prevents urgency in the issue of poor fisheries data.

Frame traceability as insurance within quality initiatives

Rationale: Traceability on its own is viewed as simply an added burden. By linking traceability to interventions focused on product quality improvements, traceability becomes an insurance mechanism to protect investments in best practice by 1) providing assurance that products sold as having these improvements (e.g. better handling practices or preferred processing methods) are the real thing, and 2) preventing unfair rejections or price reductions due to false claims of below-standard product by buyers.

What This Could Look Like: Domestic and export fisheries pilots focused on value creation that embed traceability as a critical component.

Barriers Addressed: Need for articulated information systems is not recognized nor valued.

Establish an intermediary that can serve as an honest broker to align and coordinate traceability and data modernization efforts

Rationale: A history of corruption permeates both government and industry sectors in Peru. Meanwhile, regional fisheries agencies remain overwhelmed and under-capacity while still-informal fishers lack organizational and operational support to manage their own data. Creation of an independent, neutral entity with a singular focus on data collection and quality control would help to ease tensions and promote efficiencies across initiatives.

What This Could Look Like: An independent entity that could serve a range of functions: trusted advisor helping to structure pilots, facilitator for data sharing protocols to promote interoperability among different traceability and data systems, and/or physical host of data and analyses that are shared back with government and industry stakeholders.

Barriers Addressed: Lack of trust in data collection efforts; data is not centralized and lacks a common language; lack of trust and positive incentives for collaboration lead to misaligned and uncoordinated efforts across sectors; illusion of progress prevents urgency in the issue of poor fisheries data.

Design programs to support traceability champions within and outside government

Rationale: Peru's diverse and dynamic fisheries (along with a history of corruption and poor data practice) places increased demand on Peru's regional and national fisheries authorities, as well as supply chain actors, to provide robust data quickly in order to inform adaptive management and enforcement. Traceability and data systems are evolving at a rapid pace, with new techniques and technologies emerging all the time which could meet Peru's fisheries demands. However, proper application of these systems to meet specific fisheries demands requires dedicated expertise. We recommend efforts to cultivate a community of practice in Peru of it and data experts who also understand the unique needs of fisheries management and the seafood trade. These experts would be able to provide the high-touch, on-going

support necessary to help both government and industry actors successfully adopt and implement more sophisticated traceability and data systems to meet the needs of Peru's extensive fishing industry.

What This Could Look Like: Development of a network of change agents focused on data modernization solutions for fisheries management; programs to support government officials that are pro-data and pro-traceability, such as fellowships or learning exchanges; targeted efforts to build on nascent initiatives, such as Peru's partnership with global fishing watch, to push impact along with the PR value of such programs.

Barriers Addressed: Diversity and dynamics of fisheries require more sophisticated systems—across infrastructure, data, and policy.

Design Parameters

Build transparency into every step of the process

Rationale: Setting clear expectations (how, why, and with whom data is being collected and shared) and putting frequent feedback mechanisms into place are critical to help overcome the lack of trust and suspicion that permeates the fishery system of Peru. Explicitly showcasing and acting on an open and transparent process could help recruit stakeholders into pilots and, eventually, attract more participants. It also would allow systems to be designed so as to make corruption much more difficult.

What This Could Look Like: Mechanisms through which stakeholders can directly monitor and access the data they are contributing in order to see how and when it is being used, and by whom; build transparency into the operations of data initiatives—from lists of stakeholders to how budgets are spent to simple and frequent reports on progress; implementation of technology, such as electronic monitoring, that provides verifiable data into traceability systems.

Barriers Addressed: Lack of trust in data collection efforts.

Highlight pilots as learning exercises to de-risk & motivate participation

Rationale: Implementing traceability or modernized data systems by participating in a pilot or new initiative can risk exposure of poor or even illegal practices within organizations. While this is especially felt by industry, it can also apply to agencies within government departments that may not be meeting existing requirements. Such risk acts as a deterrent to full participation in any initiative. Framing participation as a free learning opportunity inclusive of training on best practice while providing further motivation in the form of limited amnesty on issues such as data collection, formalization, taxation, and general documentation, can help assure stakeholders that their participation will be of benefit rather than burden to their organization.

What This Could Look Like: Establish clear protocols that protect participants from penalty during pilot stage, and provide support to turn transgressions

into improvements.

Barriers Addressed: Lack of trust in data collection efforts; need for articulated information systems is not recognized nor valued.

Encourage public request for proposals (RFP) process for technology selection

Rationale: In Peru, the lack of it capacity in both fisher communities and government agencies can mean technology selection is a heavy lift. There are multiple benefits associated with issuing a public RFP to solicit traceability technology solutions in seafood that, for the Peruvian context, are particularly relevant. These include: 1) articulation of specific data needs to ensure greater likelihood of best-fit across a diverse and constantly-changing technology landscape; 2) advancing interoperability by encouraging joint-proposals among vendors offering different products and services; and 3) efficiencies gained by being able to compare different technology proposals rather than vet individual provider solutions one-by-one.

What This Could Look Like: Refine Future of Fish’s RFP tool to meet government needs, translate into spanish, and share widely across Peru’s stakeholder landscape.

Barriers Addressed: Data is not centralized and lacks a common language.

Incorporate short-term gains into initiatives to attract & retain buy-in

Rationale: The benefits of traceability and data modernization may take months or years to truly manifest, and often they are diffuse and hard to capture in terms of a discrete and clear ROI. However, there are tangible, short-term gains that can be built into initiatives in order to attract and retain participation over the long-term. Traceability systems provide a means for capturing and analyzing trends, which creates robust track records with which fishers and other supply chain actors can unlock benefits, including access to financing and business intelligence (e.g. insight into catch rates over time, pricing dynamics).

What This Could Look Like: Human centered design to identify specific values and incentives that could motivate fishers and government agencies to act, such as access to financing, insurance, or positive reputation gains; develop pathways that make data accessible and usable in near-real time so stakeholders can quickly receive data and benefit from its generation during pilots.

Barriers Addressed: Lack of trust and positive incentives for collaboration lead to misaligned and uncoordinated efforts across sectors; diversity and dynamics of fisheries require more sophisticated systems—across infrastructure, data, and policy.

High touch, in-person support to lift burden of initiatives

Rationale: Because every fishery and community is unique, and especially because Peru has such a diverse suite of fisheries, customized, in-person support over extended time periods (beyond a year-long pilot phase) is necessary to foster both behavior change and long-term commitment to a new system. In Peru, government officials (especially at the regional level) are under-capacity in terms of science, management, and enforcement. Meanwhile, bureaucracy overwhelms fishers with paperwork and fulfilling requirements. Identifying appropriate and practical training while providing high-quality support will be critical to securing participation in both industry and government sectors.

What This Could Look Like: Pilots provide direct support for fisher reporting requirements, not just through training of new traceability systems but by collecting and entering information on behalf of fishers where needed to lift burdens, improve data quality, and return immediate relief to fishers; mentorship program could establish working relationship between experienced professionals (within or outside of Peru) and Peruvian fisheries staff.

Barriers Addressed: Diversity and dynamics of fisheries require more sophisticated systems—across infrastructure, data, and policy.

Next Steps

Given the increasing international and national focus on improved data systems combined with the initial leadership steps taken by the Peruvian government, now is the time to find supply chain-driven solutions to traceability in Peru's fisheries. The recommendations offered in this document have been designed to reward more and better data while forging pathways that lead to traceability adoption and eventual implementation, with the goal of promoting the long-term health and sustainability of fish stocks while improving livelihoods for artisanal fishing communities.

Fishery development and traceability implementation, particularly at a national level, is a multi-stakeholder process that will require collaboration between diverse parties over an extended period of time, and we by no means intend to implement these solutions alone. Future of fish is actively seeking partnerships to support traceability implementation efforts in Peru. Interested organizations can contact us at info@futureoffish.org.



www.FutureofFish.org