

Supporting Traceability



Puerto Libertad,
Mexico Clams Project

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Objective

Community and Biodiversity (COBI) is a Mexican civil society organization which strives to the goal of saving marine ecosystems that are deteriorating due to unsustainable exploitation of natural resources. Future of fish is a non-profit systems change organisation which focuses on working with industry players, technologists, and NGOs to create business solutions to ocean challenges.

This report outlines specific recommendations, made by Future of Fish, for implementation of a robust full chain traceability in one specific fishery and associated supply chain in which COBI supports improvement, as well as outlining a more overarching holistic approach which COBI could begin to employ, related in traceability within its wider program, fisheries improvement projects and wider fishery supply chain engagements, both for domestic and export oriented markets. This process of coordination between both organisations was initiated through this process and we see great opportunity for future collaboration between both organisations, both on traceability and additional supply chain focused interventions and projects moving forward.

Traceability: Definition & Implementation Overview

TRACEABILITY

Within the context of fisheries, robust, end-to-end traceability can be defined as the ability to tell the story of the origin, journey, and special attributes of a product *with the assurance that your story is true*. The capacity to trace a product to origin is critical to ensure that health and safety attributes, sustainability, and legality of the product can be communicated from downstream (fishers) to upstream players (buyers, end consumers) in the supply chain.

For COBI and the communities with whom COBI works, traceability can be effectively used to translate and communicate the extent and depth of work that has gone into ensuring improved and sustainable management of the resource from extraction through processing and sales. While the level of technological complexity required will be determined by the needs and demands of the stakeholders within the supply chain, a robust traceability system makes it possible for the marketplace to recognize and reward products produced from sustainable and legal practices.

IMPLEMENTING TRACEABILITY TECHNOLOGY SOLUTIONS

Companies and cooperatives within the seafood industry are increasingly interested in understanding and implementing traceability technology systems with the ability to meet both current and future requirements. Unfortunately, there is (as of yet) no single solution that can satisfy all supply chain needs. However, there are combinations of technologies that, when applied within and across trading partners, can provide end-to-end solutions for providers and their supply chains.

To determine the “appropriate” set of technology solutions, each trading partner must determine what is needed within the walls of their business (internal traceability), as well as understand needs of trading partners up and down their supply chains (external traceability).¹ For example, determining external capacity includes asking questions such as:

- What buyers and suppliers do I regularly trade with?
- What are the traceability goals of my supply chain partners?
- What government systems can I / am I obliged to integrate with?
- Does my system allow for supply chain transparency?
- Does my system meet my business’ current external traceability needs (i.e. client information demands, regulatory requirements, etc.)?
- Does my system allow for data to be received, created within my facility, and sent to the next supply chain business to be verified?

An internal assessment answers additional questions to help clarify what type of technology systems you might need, including:

- Does my system provide complete internal traceability (i.e. at any stage of ownership or production, can you trace a given product back to when and from whom you purchased it)?
- Does my system provide traceability for all of the seafood products your business carries and across all aspects of your business (or, is traceability lost at any point during your ownership/handling of a product)?
- Does my system allow for product-data pairing?
- Does my system allow for interoperability between internal systems, such as procurement and finance/ accounting systems?

Not every fishery or supply chain will require an extensive external and internal assessment, and we encourage the use of technology on an as-needed basis—that is, there’s no need to add additional (or overly complex) technical aspects to a project unless demanded by the supply chain and unless that technology addresses a specific unresolvable problem. In general, national level projects (which tend to be shorter and less complex) tend to be less demanding than

¹ Source: [Taking the First Steps Towards Full-Chain Traceability: A Preliminary Guide for Industry](#)

international supply chains, as major importing countries data requirements (particularly in the EU and US) are significantly more comprehensive than most national level systems.

Traceability implementation and the associated improvement of data, both supply chain and fishery oriented data, creates additional capacity and ability to access, store and utilise data to manage fisheries (quota management, harvest strategy development etc), support FIP compliance and monitor fisher participation and associated benefits over the medium to long-term period.

Collecting Data

KEY DATA ELEMENTS

Until global traceability standards exist, the key data elements (KDEs) required for traceability implementation are geographically or need-specific. They vary depending on where the product is harvested and the requirements or regulations of the intended marketplace. For example, when exporting to the United States, relevant KDEs might include U.S. Seafood Import Monitoring Requirements (SIMP) mechanisms, whereas exports to Europe may require different pieces of data to be collected and shared in line with EU IUU requirements. National level requirements for sales will vary by government and region. When KDEs are not specified, we recommend the following as general guidelines for data collection:²

- Collect KDEs in compliance with relevant government requirements, then layer on additional KDEs to meet individual or company commitments, goals, and industry best practices;
- Make near-term investments in traceability infrastructure in consultation with other industry actors and stakeholders active in your supply chains and/or industry sub-sectors, engaging to the extent possible in pre-competitive processes that allow companies to move towards adopting interoperable solutions;
- Regularly review and update company/cooperative traceability practices to keep up with evolving traceability requirements; and
- Make any near-term investments in traceability infrastructure on the assumption that requirements will continue to change in the years ahead.

For a full list of KDEs identified for this project as well as a supplemental list of international KDEs, please see **ANNEX B**.

Meeting FIP Requirements

INTERNATIONAL GUIDELINES PERTAINING TO FIPs

A fishery improvement project (FIP) is a multistakeholder effort to address environmental challenges in a fishery. These projects utilize the power of the private sector to incentivize

² Source: [Recommendations for Addressing Seafood Traceability and Key Data Elements](#)

positive changes toward sustainability in the fishery, and seek to make these changes endure through policy change. The Conservation Alliance for Seafood Solutions has named the following key elements as defining of robust, credible FIPs:³

- Participation
- Public commitment
- Objectives
- Workplan
- Progress tracking and reporting

Additionally, these guidelines recommend that all FIPs work toward including traceability as a key part of their objectives. As FIPs are, in part, a tool utilized by supply chain actors to access new markets and obtain product premiums, traceability linked to FIP projects is critical to ensure that only products originating from a FIP and following the sustainability procedures of that FIP are able to enter and benefit from market opportunities opened up by the FIP. Additionally, traceability is a key tool for measuring progress and transparency within a FIP, allowing participants to see where progress is being made regarding product volume, quality, and other key KDEs. Public reporting also has the potential to spur government interest in investing in their own (or pre-existing) traceability programs, as public programs begin to produce data that is of higher quality than nationally or even regionally collected information

PUERTO LIBERTAD CLAM FISHERY IMPROVEMENT PROJECT

The artisanal clam fishery of Puerto Libertad, Sonora, has been active in a fisheries improvement project since 2017. After a four year collaboration between fishers, fishery managers, and COBI, permits for the extraction of clams were officially distributed. These include different fishing management tools (closures, sizes, quotas and refuge areas), as well as the commitment to work together for population monitoring, life cycle studies, and sustainable harvesting of clams, achieving a more economically and socially robust management system.

One cooperative—Mojarra del Arrecife participates in this FIP, and is one of only two groups with permits to harvest clams, which are manually caught by hookah-type diving. The species extracted include the chocolate clam/squalid callista (*Megapitaria squalida*), red clam/golden callista (*Megapitaria aurantiaca*) and white clam/ponderosus dosinia (*Dosinia ponderosa*).

The FIP has the following stated objectives:

- Implement a traceability program for the clam fishery in order to increase the responsibility and transparency of the producers.
- By 2022, fishers will implement a demonstrative model of sustainable fishing.
- Generate information on the fishery of clam about stock status and its situation to make it sustainable.

³ Source: [Guidelines for Supporting Fishery Improvement Projects](#)

- Generate progress in the 28 MSC indicators, maintaining those that are "green."
- Identify the cost-benefit baseline of stakeholders and access to markets with sustainability criteria.
- Encourage improvement in the application of standards and monitoring.
- To make the fishery known as a sustainable fishing model for other fisheries.

Current Systems

PUERTO LIBERTAD TO MEXICO CITY SUPPLY CHAIN

The clam supply chain, under investigation within this project, begins in Puerto Libertad and ends in Mexico City (Supply Chain figure available in **ANNEX A**) with no intermediaries, no processing, and brief storage time and transportation period. The cooperative harvests the red, chocolate and white clams, which are cleaned and stored for no longer than 24 hours in a tank located in the back of the cooperative leader's home. The clams are then packaged by species into styrofoam boxes with gel ice packs to ensure product freshness and driven approximately 3 hours by a cooperative member from Puerto Libertad to Hermosillo, the closest town with access to air transport. In Hermosillo, the boxes are loaded onto a plane (Aeromexico) and shipped directly to Mexico City (flight time of approximately 3.5 hours) and picked up directly from the airport by a staff member from Contramar restaurant in Mexico City. The clams are transported directly to the restaurant by the staff member and delivered to the kitchen on a bi-weekly basis, most often on Tuesdays and Thursdays.

MEXICO: REGULATIONS AND RECOMMENDATIONS

The regulatory requirements for harvest and shipping of seafood between states in Mexico are relatively minimal. The documentation required by state and national law is as follows⁴:

Pre-Harvest/Registration

- **Fishing Zones and Quota Limits:** This document defines fishing zones through the use of specific GPS points. Within every zone, the annual quota and minimum catch size is determined for each species
- **Certificado de Matricula** (vessel registration): Captain/boat owner, boat name, boat size and holding capacity.
- **Cédula Auxiliar de Inscripción de Embarcaciones Menores en el Registro Nacional de Pesca y Acuicultura** (Vessel registration): Vessel registration through the national register of fisheries and aquaculture.
- **Certificado Nacional de Seguridad Para Embarcaciones Menores Hasta 15M de Eslora** (National Safety Certificate): Boat and motor type, on-board equipment, year of boat construction.

Harvest

⁴ While regional offices are empowered to stamp and sign documents, all data collected is done so under the purview of the Federal government.

- **Permiso de Pesca Comercial para Embarcaciones Menores** (Fishing Permit): The fishing permit determines issues such as fishing zone, species permitted to fish/harvest, length of permit period (generally 2-4 years before renewal), boat name, and motor type.
- **Fishing Log:** Record of every day fished, submitted to the government on a monthly basis. Includes boat name, location of harvest, and amount of harvest (by number, not volume).

Landing

- **Aviso de Arribo de Embarcaciones Menores de 10 Toneladas de Registro Bruto** ([Landing Record](#)): This document is required at each landing, and includes species fished as well as form of product at landing (whole, gutted, on ice, etc.), price, fishing areas, landing site and length of trip.

Packaging/Transport

- **Guia de Pesca** (Transportation Guide): This document is provided by the federal government, and may be found online [here](#). The Guia de Pesca is required to transport fresh, frozen by land, sea, or air from fisheries or aquaculture within Mexico, and contains the majority of the information of all other documents combined. This document is filled out for each fishing trip, and must be stamped and signed before transport.

Currently, the required documents are completed, signed, and stamped by local officials, then attached with tape to each box by a co-op member before transport. Copies are retained by the cooperative as well as by Contramar.

Within 10 days of receiving a shipment, Contramar wires the cooperative money owed for the transaction. There is no formal contract between the cooperative and Contramar—rather, this agreement is based off of the personal relationship built between Armando (restaurant manager) and Gabriel (cooperative leader).

As part of Contramar’s commitment to traceability, they have conducted trips to the field in Puerto Libertad to check water and equipment quality as well as to see how the clams are harvested, personally meeting with the cooperative members. Additionally, Gabriel regularly sends videos and pictures of the cooperative’s daily harvest to Armando at Contramar, and created a series of short videos about his work to share with the staff at the restaurant. Information communicated in this manner, combined with the paperwork that arrives with each box of product, is considered sufficient by Contramar to meet their traceability, sustainability, and quality standards.

PESCADATA

PescaData is an interactive mobile application designed by COBI to promote the participation of fishing communities in fisheries improvement through the generation of biological-fishing information. The information collected for PescaData may be assessed in a way that provides information about trends over time, including by species (size, weight, gender, age), location (sites with the highest fishing frequency/ rates of catch), and even finances (income and

expenses). PescaData aims to involve fishermen in making management decisions through the registration and digital analysis of their catches.

Generally, Pesca Data allows for the following functions:

- **Registration of fisherman:** Each fisher can register as an independent user, which allows them to have direct access to the information they enter.
- **Fishing log:** a record of the daily catch and location fished, integrating information of the value of the product (on the beach) and of the travel costs.
- **Fishing Monitoring Option:** Optional biometric data including the measurement of sizes and weights, identification of sex, and stage of maturity of the captured species.
- **Registration by Cooperatives:** In addition to registration as an individual, it is possible to register as a cooperative (or group of fishermen). Here, all information from all users (fishermen) registered in the profile of the cooperative will be displayed in an integrated fashion.
- **Offline Recording Capacity:** No internet connection is required for data capture, so the app can be used in isolated places without a cell phone signal. When a network is accessed, the user can synchronize the captured fishing and monitoring logs, sending and storing data in the cloud.
- **Database and Analysis:** The app has a web platform where the captured data of registered users is stored, generating a database with the ability to produce simple graphs that visualize in real time the data that users have entered into their profile in PescaData.

*A list of the relevant stakeholders engaged in conducting the work, interviews and discussions needed to compile the information contained in this report is available in **ANNEX C**.

Recommendations

GENERAL TRACEABILITY DOCUMENTATION

Due to the short period allocated for this assessment, we are aware that there may be some documentation and items that we have not yet uncovered that will need to be incorporated into future work on traceability implementation. In general, the majority of basic traceability systems require documentation regarding the following:

- **Legality of the supply chain actors and their businesses:** Including incorporation and tax documentation of the cooperatives, proof of legality of transport vehicles and drivers, proof of legality/contracts with airlines to transport seafood and maintain storage and handling as required by Mexican law.
- **Food safety and quality aspects:** Food quality and safety aspects exist related to the catching, handling, transport and sale of this particular species; including the certification of “pristine” waters for the area used by the cooperative and local storage before transport. Additionally, as food safety and health regulations become stricter, or if export

sales occur, then HACCP and associated health certifications will need to be made available as reference documentation for traceability. Temperature logs along the distribution chain are examples of additional health and safety precautions/requirements which may be needed in the future.

- **Adherence to local, federal, and international law:** Typically, the legal operation of a business, within the seafood sector, needs to show adherence to multiple levels of policy and regulations. These include items such as vessel registration, data submission, license approvals, quota management, as well as being compliant with regards to local rules related to closed seasons and fishing areas. The sale and transport of seafood goods are also typically framed by rules which ensure safe and legal trade of quality assured products.

RECOMMENDATIONS FOR THE PUERTO LIBERTAD SUPPLY CHAIN

As outlined above, the Puerto Libertad Clam fishery and the supply chain under investigation is already operating at a high level of compliance with regard to local and federal law. Aspects of food quality and safety are adequately meeting the needs of the supply chain actors, and the structure of the organisations engaging in the trade of clams and their infrastructures are all meeting national standards as required. The traceability system currently being implemented uses minimal electronic functionality, but is meeting the needs of the engaged actors. The following recommendations are made with the aim of improving and modernising the system already in place, noting that these improvements have the intention of ensuring that all stakeholders engaged have access to a system which meets their needs in a changing and modernising sector, without creating a system with unneeded complexity and financial burden on the participating actors.

Transparency and leadership are driving forces behind the proposed updates to the system, which are as follows:

- **Share electronic versions of all documentation related to quota, fishing permits as a transparency step:** Effective documentation regarding the regulations constraining the individual fishermen as well as the cooperative, such as quota allocation, fishing permits and vessel registration, is critical. Creating and updating electronic versions of these types of documents in a format that can be easily accessed by the buyer helps to inform a transparent, legally verifiable view of the supply chain.
- **Quota monitoring:** Currently, no obvious standardized form of quota monitoring is practiced by the cooperative; rather, the approach is informal and hand-written notes regarding catch are monitored by the cooperative. We heard that a monthly submission of catch is done by COBI to the government based on notes taken by cooperative members. We recommend switching to electronic documentation for the daily, weekly and monthly catches as it related to quota for each of the 3 species in question. This information would remain internal to the cooperative but would be useful for internal tracking purposes, in the event of an audit, or for analysis on seasonality of catches and purchasing by the buyer.

- **Contract between cooperative and buyer:** Contramar (Armando) and Gabriel are both happy with the current situation, described a 'gentleman's agreement'. However, lack of legally binding documentation positions both sides to lose quite a lot in the event that either party reneges on the agreement; hence it may be advisable to implement a very basic contract which outlines the objectives of the project, the key role of sustainability in the project, and the willingness of both parties to maintain a traceable documentation system and contribute to a transparent process.
- **Annual internal audit:** As a means of verification, it would be advisable for both parties—the cooperatives and Contramar—to agree to a third party audit, (which could be carried out by COBI), where documentation and data submission to the government, data submitted to PescaData and sales information is compared to ensure volumes match between all sources. This is a transparent and simple way to ensure adherence to rules and willingness of all parties to verify their role in a transparent and sustainability-oriented process. Results of the audit do not have to be shared, but could be a way of additional marketing used by Contramar to the consumer on their commitment to responsible sourcing.
- **Electronic traceability as a means of increased market access:** While the agreement between Gabriel and Contramar is based off of mutual trust, understanding, and a true desire for traceability and sustainability to remain in the forefront, we have found these relationships to be an exception rather than the rule in the world of seafood traceability. The majority of international (and even national) markets require significantly more information than what is currently utilized in this supply chain. Creating a system that could potentially access larger markets would require electronic documentation and record-keeping that can be communicated in real-time (or close) and across significant distances. While it is clear that current volumes and interest in the project don't lend themselves to the international market, having a system in place that is capable of dealing with multiple market scenarios creates space for potential expansion in the future.
- **Creating an incentive for data submission:** At the moment, the cooperative is not submitting data to PescaData on a daily basis, which we have found to be a very common situation at the fisher/cooperative level. COBI are supporting this data submission at the moment, however it would be advisable to identify a process whereby data entry would be carried out independently of COBI. A deeper review of the cooperative's data entry and management needs may be required--in theory, data flow could be streamlined by entering information into PescaData, which has the ability to eventually create and submit a monthly report that meets tax, fisheries government, and market requirements. Within such systems, multiple positive incentives may be possible, including gains in efficiencies with reporting or transfer of story, business intelligence in terms of fishing, handling, or logistics practices, or others.
- **Add a description of traceability in place to fisheryprogress.org:** As there is already a robust traceability system in place in the Puerto Libertad fishery, it would be advisable to add a short description of the current traceability system, the level of adherence to government regulation, and the level of transparency employed by all participating members to the fisheryprogress.org profile. Having traceability that meets the needs of

the participating supply chain members and communicating this is an important part of running a progressive FIP, and this should be portrayed to the public.

GENERAL RECOMMENDATIONS FOR COBI

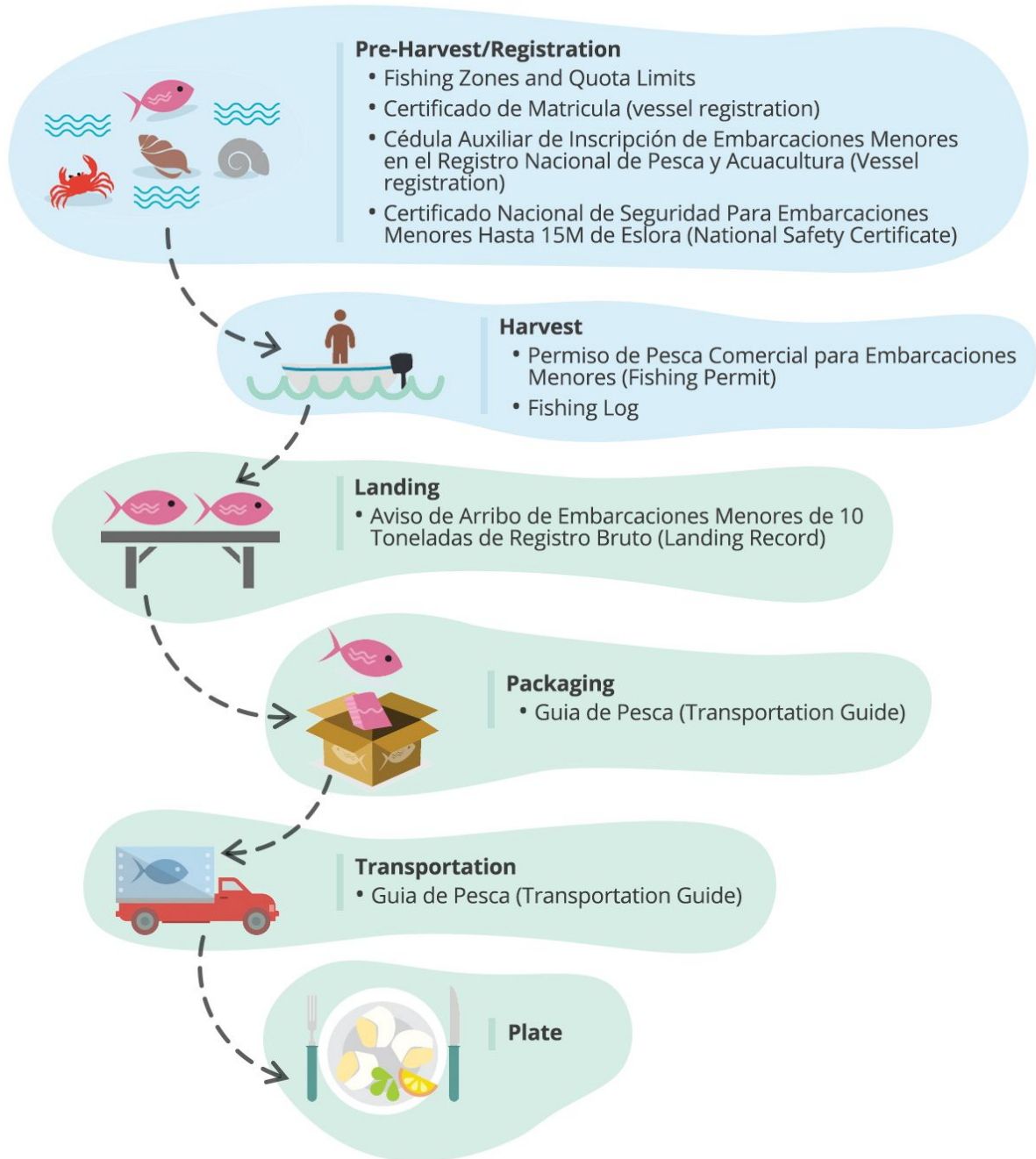
Future of Fish understands the increasing pressure for fisheries and implementing organisations working in the seafood sector to meet new demands related to transparency and traceability. COBI, as an organisation that works actively in the FIP space and directly with fishing communities trying to access increasingly regulated markets, has identified a need to more effectively incorporate traceability into its work. The following set of recommendations have been developed to advise COBI on some basic steps that could be taken within the organisation and its programs, to integrate traceability into its work without extensive disruption or distraction from its core work. The following recommendations are initial suggestions and lay the basis for potential collaborative work between Future of Fish and COBI in the future.

- **Update PescaData to include basic KDEs for traceability:** Updating PescaData to include KDE options for traceability outside of the specific needs of the current project allows for extended use of the system through a wide range of fisheries projects without requiring market-based technology adjustments. While project-based and national level KDEs may have some level of variation, international requirements generally remain standardized; the ability to recognize what is required in the international market and easily record that data in a digital format creates value across projects.
- **Connect the Pesca Data system to specific origin documents:** The PescaData system may be made more accessible to regional as well as national authorities by linking the KDE database to the documentation of origin. In places where the same data is collected in multiple documents, there should be links available to all documents used to determine the data point. As each government entity at each node in the supply chain requires distinct documentation, it is important they are able to not only access the document that this record came from, but potentially cross-check this data with other documentation to verify the data collected is consistent.
- **Assess the KDEs required for national FIP work:** As COBI is engaged with a number of FIP programs across Mexico, there will be a variety of KDEs required for each project on a geographically specific basis. The creation of a comprehensive FIP-oriented KDE list for all of COBI's partnerships will allow PescaData to be used seamlessly across locations and projects.
- **Continue to work with partners to create a broader process for traceability assessments in new fisheries:** Assessing burgeoning traceability projects in emerging fisheries programs is still an inexact science that requires on-the-ground relationship building, field-based data collection, and, frequently, new data modernization efforts. COBI's extensive experience in this area makes them a natural leader to help create a standard system that can be used across geographies to assess and assist new traceability efforts across fisheries.
- **Training Events & Manuals for Seafood Traceability:** There are numerous training manuals and guides available for groups interested in FIP implementation--however, there

is significantly less material available (particularly for fishing communities) regarding the rationale behind traceability implementation. Basic questions, such as “what is traceability?” “who is asking me to do this?” “how does this benefit me and my community?” or “who will be able to see this information?” are essential to communicate and explore prior to any sort of implementation plan. Utilizing their years of on-the-ground experiences, we recommend COBI run traceability specific training events and assist in the creation, utilization, and growth of materials specifically targeted to communities. If it is of interest, Future of Fish has created a number of publicly available [tools, guides, videos, and training materials](#) that might be of use for COBI’s continued traceability work, although it should be noted that the intended audience for these tools are NGOs and industry, and the content might need to be altered slightly to meet community needs.

ANNEXES

ANNEX A: MAP OF THE CLAM SUPPLY CHAIN AND ASSOCIATED TRACEABILITY DOCUMENTATION NEEDED AT EACH NODE



ANNEX B: PUERTO LIBERTAD KDEs & INTERNATIONAL SUPPLEMENT

The KDE's identified for the Puerto Libertad Supply chain are as follows:

Harvest

- Date of trip departure
- Date of trip return
- Time and Date of Harvest
- Location of harvest (where in the water, state, and municipality)
- Name of boat
- Size of boat
- Boat holding capacity
- Type and size of motor used
- Name of captain/owner
- Address of captain/owner
- Crew members on board
- Species harvested (red, white, or chocolate clams)
- Weight (determined by a number to kilo conversion mandated by the government)
- Number of each species harvested per trip
- Location of cooperative (includes specific address)
- Type of species harvested per trip
- Length and dates of fishing permits
- Boat registration number (should match number painted on the side of the boat)
- Legal fishing area (zone determined by fishing permit)
- Date of issue and expiry of permit
- Equipment used (diving, longline, etc)
- RNPA Key
- Annual quota by species and fishing zone (quota distribution at a weekly/monthly level is at the discretion of the fishermen)
- Minimum catch size

Transportation

- Type of Transportation (including car type and license plate/airline and flight number)
- Destination address
- Species per box
- Weight per box (kilos)
- Total weight (kilos)
- Receipt number from purchaser
- Landing Record

While the scope of this project does not currently include export, the additional KDEs currently required for MSC, Fair Trade, US and EU markets may be found [here](#), both for comparative purposes as well as for use in alternative/future projects.

ANNEX C: KEY STAKEHOLDERS

- Marco Ross, Subsecretaría de Pesca del estado Sonora, Mexico
- Juan Gabriel Lopez Hermosillo, Cooperativa Mojarra del Arrecife
- Armando Camacho, Contramar Restaurante
- Francisco Fernandez, COBI
- Ernesto Gastélum Nava, COBI
- Estefani Larios Castro, INAPESCA (Instituto Nacional de Pesca y Acuicultura)
- Saul Rojero, INAPESCA (Instituto Nacional de Pesca y Acuicultura)
- Jorge Lopez Rocha, UNAM (Unidad Multidisciplinaria de Docencia e Investigación Sisal de la Facultad de Ciencias de la UNAM)