

Understanding Traceability

What it is. Why it matters.

The logo for Future of Fish, featuring the words "FUTURE" and "FISH" in a bold, sans-serif font, with a stylized "of" in a script font between them, all contained within a yellow circle.

FUTURE
of FISH

April 2016

Hello and thanks for listening.

My name is Marah Hardt and I am the Research Director at Future of Fish, non-profit organization that provides research, design, and business services to innovators and entrepreneurs working to build sustainable fisheries.

Today, I'll be walking you through a presentation on Understanding Traceability. What it is. Why it Matters. As a heads up, the slides you will see have minimal text, and I will be talking you through the important concepts. So you may want to have something to take notes with.

Throughout this talk, there will be mention of additional resources for those who wish to go deeper and we encourage anyone interested in finding out more to check out the traceability webpage at Future of Fish dot org. Our contact details will also be provided at the end.

OK. Let's dive in.

Overview

- Provide clear definition of traceability and traceability technology
- Discuss importance of full-chain traceability
- Describe current traceability landscape
- Highlight emerging initiatives
- Share guidance for engaging industry



There's a new buzzword in the sustainable seafood movement:

Traceability. But like the word "Sustainability," "Traceability" is an ambiguous and confusing concept. This presentation will:

Provide NGOs with a clear definition of traceability and clarity about traceability systems and technology;

Discuss why full-chain traceability matters for long-term fisheries management;

Describe the current traceability landscape within the seafood supply chain and identify the important gaps;

Discuss the emerging initiatives and technologies that hold promise for increasing adoption of improved traceability across the seafood supply chain; and

Provide basic guidance for how to effectively engage industry in traceability conversations

The goal is to reduce confusion between NGOs and the seafood industry by helping all NGOs come to a common understanding of

What is traceability?



So, what is traceability?

What is traceability?

Traceability Defined

A record-keeping system designed to track the flow of product or product attributes through the production process or supply chain.



Most people have a general sense of what traceability means when they hear the word. And many businesses will claim they are “traceable.”

At its most basic definition, traceability is a record-keeping system designed to track the flow of product through the production process or supply chain. A robust traceability system allows for both tracking a product forward from its origin (or component raw materials) to the end user *and* tracing a product back from any point in the supply chain to its origin. In other words, the record-keeping works in both directions.

What is traceability?

It's barcodes
and QR codes!

Paper works
just fine!

It's GS1

It gives me
product recall
capability

It's one up,
one down

It's electronic
logbooks!

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The historical roots of traceability stem from food safety concerns, and regulations that sought to ensure companies had a means with which to recall contaminated animal products. So, for many businesses, traceability means having the data to know what came in the company's door, and what left.

But, for other individuals traceability can mean something very different.

For some, the term traceability implies highly sophisticated electronic data systems that can store product information in the form of bar codes —record keeping that is readily accessible with the touch of a button.

For others, the word means having a set of standards by which data is recorded and shared.

And yet others hold that traceability must provide access to essential

What is traceability?

Everyone is correct

There are multiple functions of traceability that meet different needs and provide different benefits.

Record
keeping

Product
recalls

Regulation

Tracking
payments

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The truth is, everyone is correct. Today, there are multiple functions that all fall into the “traceability bucket.” These functions exist to serve different business and regulatory needs. The type of traceability an organization or company employs thus will vary depending on certain supply chain factors, such as:

where a company sits in the supply chain

the type of product they handle—processed or fresh? Commodity or differentiated?

the structure of the supply chains they engage in—is it a vertically integrated supply chain? Or highly fragmented?

The context within which the seafood company is operating will dictate what kind of “traceability” the company is most likely to want or adopt.

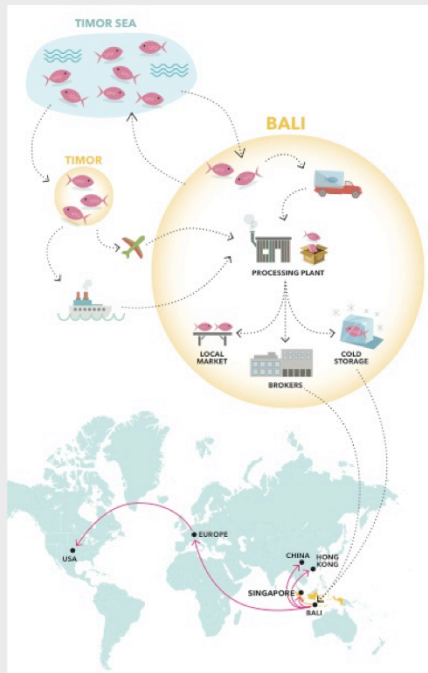
The Status Quo



So, let's take a look at a typical supply chain and walk through some of the most common forms of traceability that exist in the current seafood landscape. We will use a wild capture fisheries as an example, but similar processes happen with farmed fish. Keep your eyes and ears open for where there are gaps in these systems—something we will explore in a few more slides.

The Status Quo

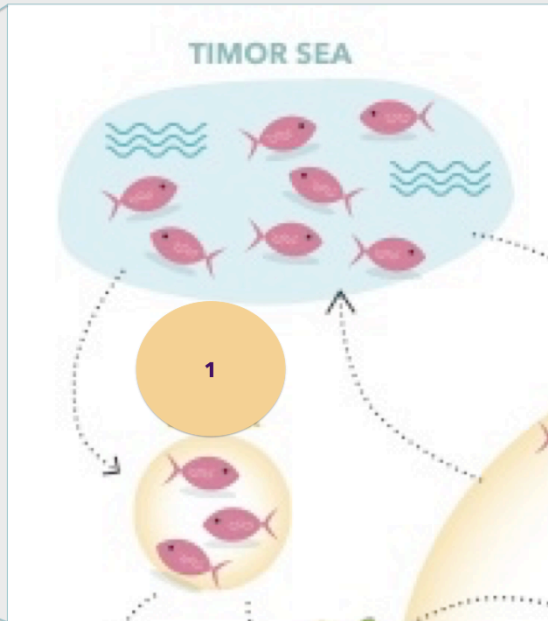
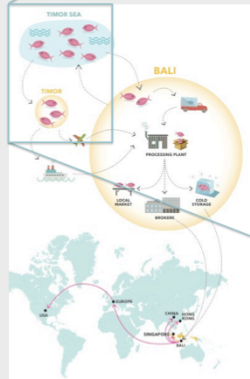
A “typical” seafood supply chain



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Let's take a look at a “generic” supply chain and walk through some of the most common forms of traceability that exist in the current seafood landscape. We will use a wild capture fisheries as an example, but similar processes happen with farmed fish, with a few exceptions. Keep your eyes and ears open for where there are glaring gaps in these systems—something we will explore in a few more slides.

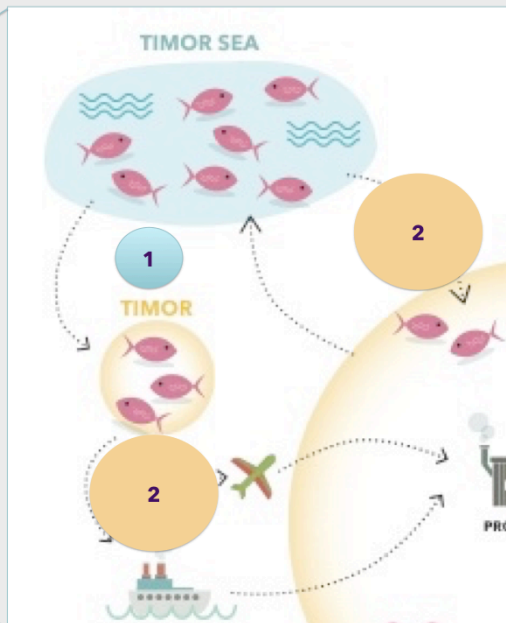
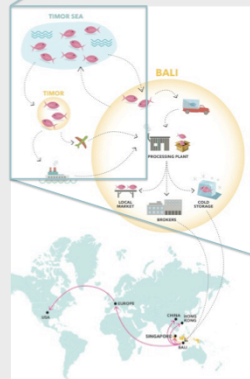
The Status Quo



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Step 1: Fishers harvest one or multiple species from an ocean region. In artisanal fisheries, the region is normally referred to by a local name. The FAO has delineated specific regions of ocean and in more developed countries and where regulations are more strict, fishers must provide the fishing location by at least this FAO region-level of resolution.

The Status Quo

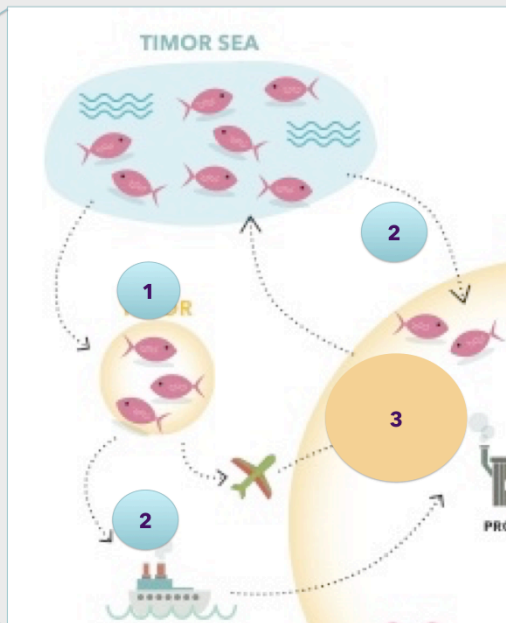


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Step 2: Fishers land catch at a port or beach. In some places, different fishers fishing the same area may land their catch at different sites. Alternatively, fishers fishing different areas may all land their different catches at the same location. At the dock, fishers exchange product with a dealer, or what is termed a “first receiver”. In artisanal fisheries, this person may also be referred to as “the middleman” or the “supplier.”

Knowing where a seafood product was caught depends on accurately recording data at this point in the supply chain. The level of complexity in recording this data increases with the number of fishers, the number of source regions, as well as in the scenario of one stock being landed at different ports.

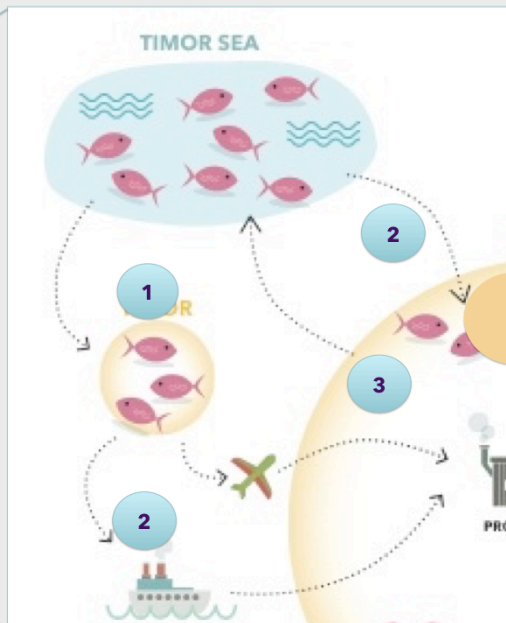
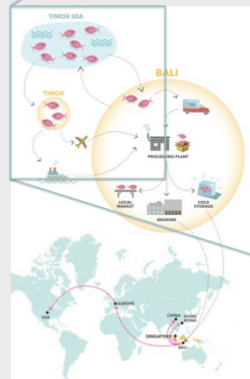
Note that in some fisheries, fishers will “land” their catch with a transport vessel out at sea. This vessel then brings the catch from multiple fishers to the landing site.

[illegible]

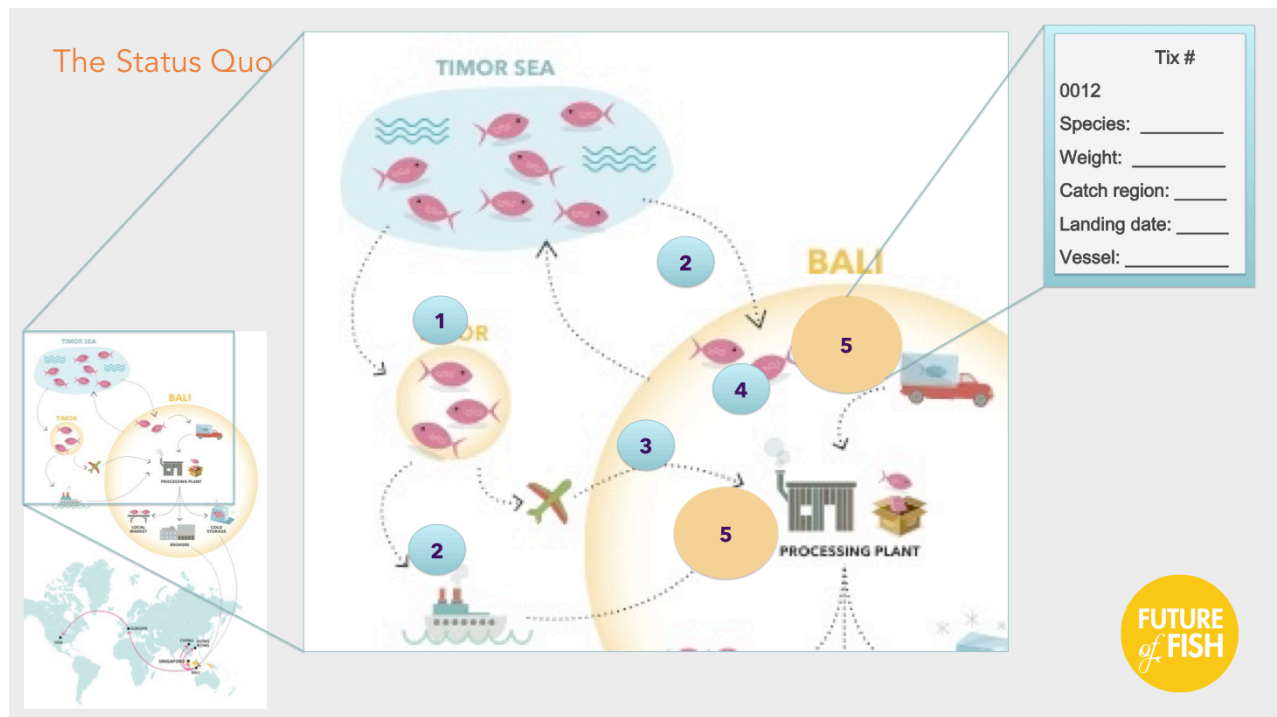
In many small-scale fisheries, data collection at the point of landing doesn't exist. Instead, NGOs, governments, and first receivers may fill this gap by hiring and training enumerators, people who record the catch information, to collect relevant fisheries data themselves.

Note that fishers or dealers will often, replace information about where

The Status Quo

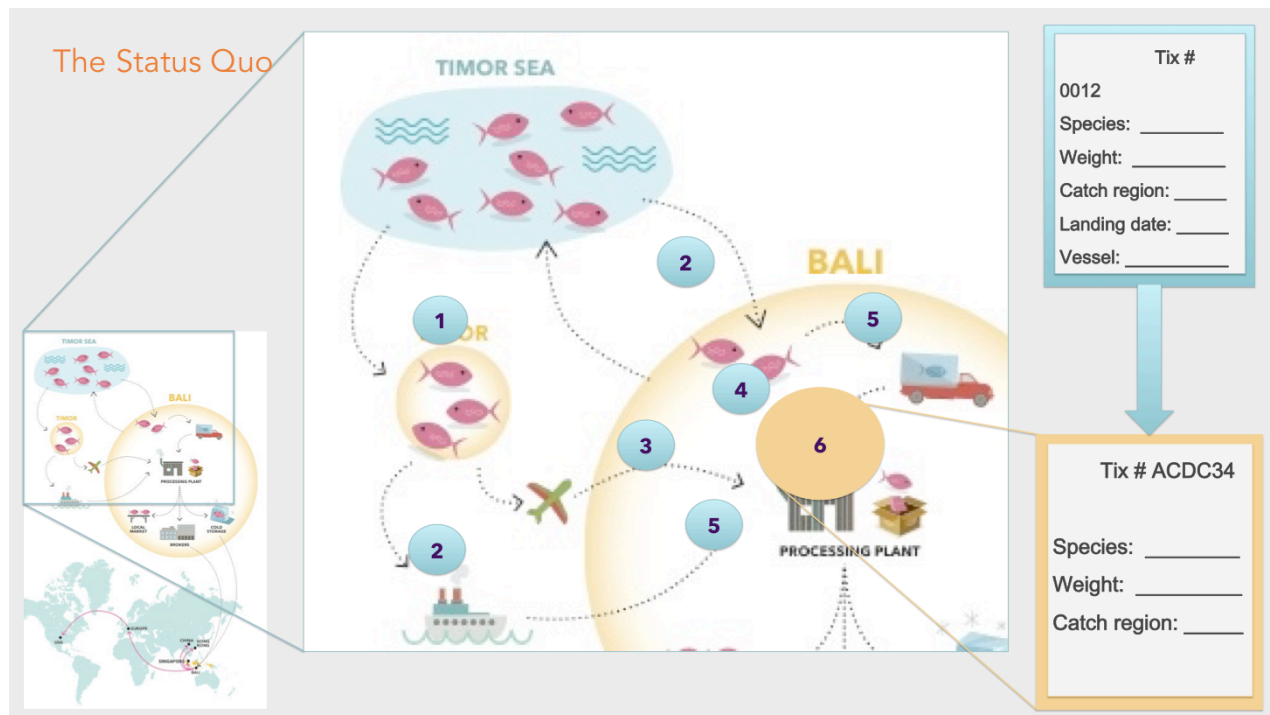


Step 4. The dealer or first receiver then submits the information gathered to the government—where government fisheries management systems are in place. In regions where fishers must also log and report their catch, reconciliation of the records submitted by dealers and those from fishers is one of the few ways regulators can verify total take from a fishery. In some countries where NGOs or governments work with enumerators to record catch, the enumerators provide independent data on landings to the government, which can be compared with dealer records.



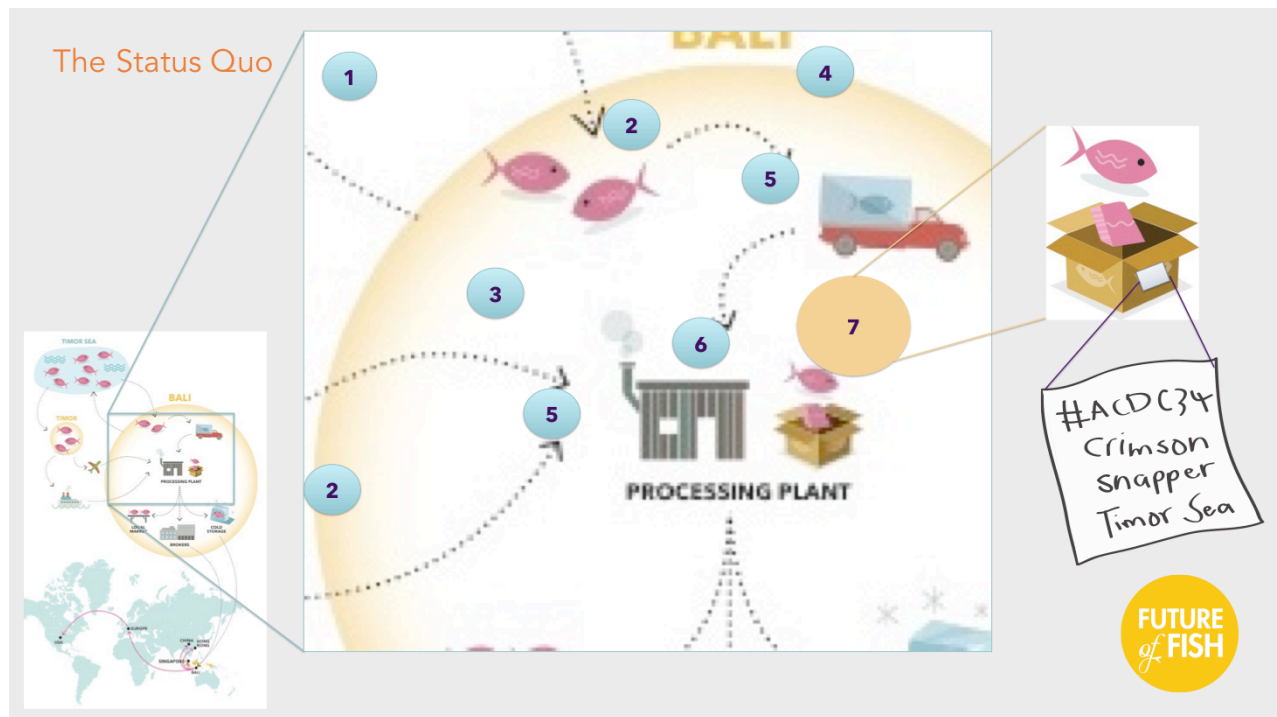
Step 5. The dealer passes fish onto a transport vehicle for delivery to processing plant- or if processing is dockside, fish are moved via crate into a facility. In some cases, the dealer might divide one fisher's catch, based on size, species, or quality and send the differently graded products to multiple locations.

More often than not, the information that accompanies the catch is a hand-written label stuck on the side of the crate holding the product. This label often has a code that corresponds to the trip ticket the dealer filled out, and can include species name and catch origin.



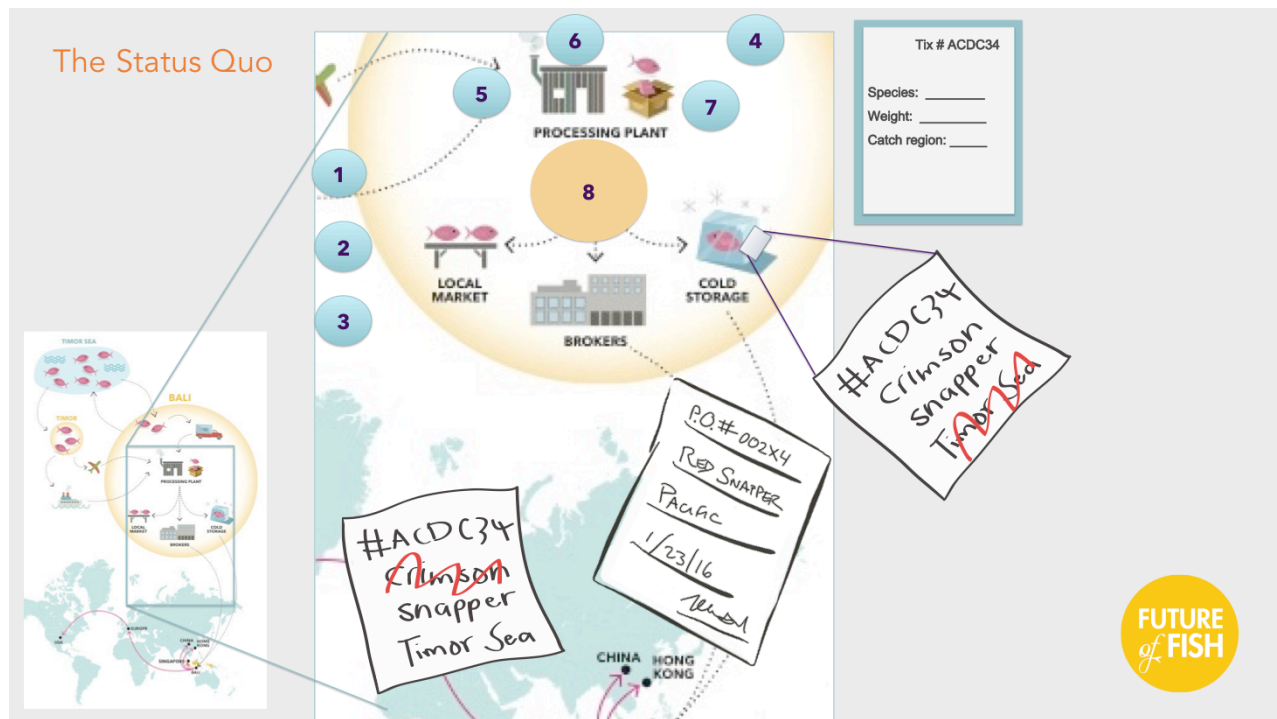
Step 6. In most large companies, the processing plant issues a Purchase Order to the dealer. The dealer then delivers the product and provides an invoice to the processing plant. This is by and large a paper exchange. The processing plant might then assign a new number based on the original Purchase Order to the crate of product- this new number corresponds with the processing company's own internal data record-keeping system and may or may not record the other identifying data from the dealer.

Today, the majority of seafood product caught worldwide is first processed in China before it is shipped back to the country of origin for sale, or sent to a different export market.



Step 7. On the processing floor, seafood product is transformed (headed, gutted, filleted, etc). In some high volume fisheries, such as Pacific cod caught by the freezer long-line fleet, the processing is done directly on board, where the fish is headed, gutted, and frozen.

Plants with more advanced traceability systems will record the species and weight of a group of fish before they process it. But not all do this. After processing, the processor will count and weigh the end product they have produced. This is how they calculate their yield- the conversion of whole fish to filets, for example. This yield is critical as it tells them how much product is available for sale, and what they need to sell in order to make money. This before and after processing data is critical for traceability as although yields vary (and are highly protected proprietary data), there is a range of acceptable conversions. Looking at these numbers can help identify if unrecorded or illegal product was slipped into a plant (such as more filets coming out than possible given the number of whole fish



Step 8. Product is then shipped from the processing plant to one of several potential locations:

- local markets
- a secondary processor for additional processing;
- a wholesaler who resells the product to another company, such as a local distributor or puts it into cold storage until they can arrange for a buyer
- an exporter, who typically sells to a wholesaler in a country outside of where the fish was caught. Sometimes, the product may be traded by a broker (who doesn't physically touch the product at any time) but arranges the details of the business transaction. When export occurs to a country that doesn't require a detailed catch certificate, critical traceability information can be lost. Language barriers can also result in the loss of data in export markets.

Each of these potential pathways involve a business transaction that is most likely recorded on paper. Labels often fall off, are misread from

The Status Quo



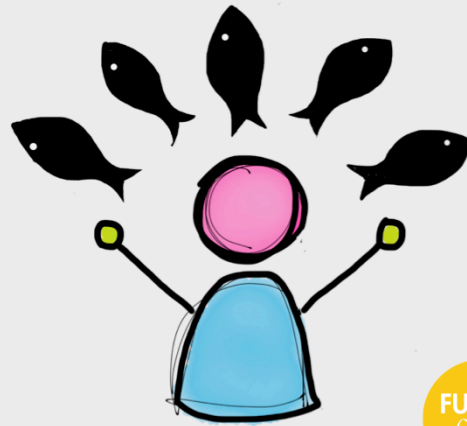
- Data often not recorded or passed along
- Recorded data mostly on paper
- Slow implementation of electronic systems



So, to summarize, for the seafood industry, the majority of data is recorded on paper—if it is recorded at all. That is true for both landings data that feeds fisheries management and for transactional data within the seafood supply chain. Seafood companies are gradually implementing electronic systems to capture and share data internally and with trading partners, but adoption is slow, due to several key barriers—which we will discuss now.

Paper addiction

- Provides “flexibility” to juggle supply and demand
- Makes fraud easier to commit

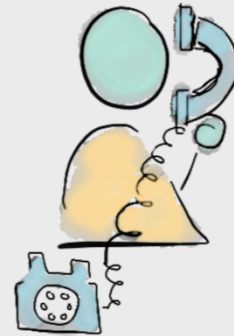


One of the hurdles to full-chain, robust traceability is a reluctance to give up paper-based system. Paper records allow a certain level of “flexibility” when it comes to fulfilling orders. Given the highly unpredictable and perishable nature of seafood products, industry players often need to shuffle product in order to meet an order; thus sometimes fish caught in one region is placed in a box with fish designated from somewhere else; or a similar species of fish is substituted to meet client demands. As in any industry, the practice of juggling client needs with inventory supplies is common, and most often resolved through communication with the client, price adjustments, or other deals that a supplier may throw in to appease a client whose order may not be perfectly fulfilled.

The more extreme end of this product swapping is fraud. In those cases, an individual will substitute a lower quality product for a higher quality one to get a better price, or swap products to meet certain client demands around sourcing without informing the client in order to keep

Cultural resistance

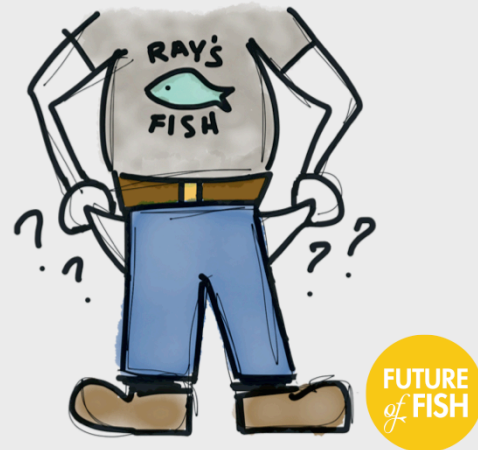
- Desire to stick with old habits
- Lack of technology access or literacy
- Hesitant to transition high-pressure operations



Reluctance to forgo paper for electronic systems is also due to basic cultural resistance. This resistance could mean sticking to familiar habits: “I’ve always sold fish on the phone and I don’t want to change.” Or it could stem from lack of access to technology or basic literacy challenges. Introducing new systems into a business can also be disruptive, which is a hard ask in an industry that is already a high-pressure environment.

No proof of return on investment (ROI) :

- See only costs of traceability, not opportunities
- Lack of correct tools and processes to capitalize on business and supply chain benefits



Finally, seafood businesses tend to view improved traceability—whether electronic or more sophisticated paper-based protocols—as only a cost. They do not currently capitalize on the benefits that fast (even real-time), accurate information could provide to their operations and ultimately, bottom line

By and large, seafood companies do not have the correct tools or processes to realize the risk reduction, brand integrity gains, or improved operations that greater data availability and accuracy could provide.

The return on investment of traceability systems—at both the business and the supply-chain level—is an active area of research currently underway at Future of Fish, and is one piece of the larger traceability strategy that several NGOs, including FishWise, WWF, and GFTC are currently working on. We'll talk more about these efforts in a few slides.

The Problems

The Problems



The fact that we don't track fish carefully through the supply chain results in dire consequences—for businesses, society, and the environment. The following slides walk through a few of the most pressing key problems that result from or are made worse by a lack of end-to-end traceability.

The Problems

Fragmentation

- Isolates data into silos
- Increases risk of inaccuracies
- Inhibits efficient product tracking
- Delays science

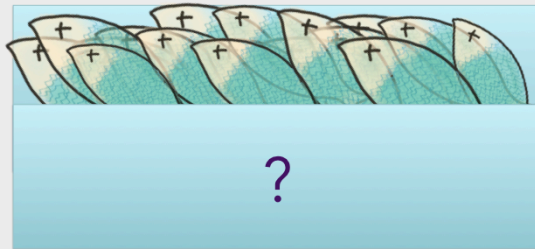


Because everything is paper-based, data is often stranded within individual companies and not passed along through the supply chain. The fragmented data flow increases the risk of inaccuracies and inhibits efficient product tracking. This stranded data also prevents the flow of essential information about how the fish was caught.

Poor data collection and data flow also lead to delayed scientific analysis of fisheries stocks, as accurate information is not readily fed into management databases.

The Problems

Illegal, Unreported, Unregulated (IUU) Fish



Without good pairing of information with product, no method exists to differentiate legitimate, responsible seafood from the illegally or irresponsibly harvested fish.

This means it is easy to slip illegal, unregulated, and unreported (known as IUU) fish into the marketplace.

We land annually on a global basis 92 million metric tons of wild fish.

There's an additional 28 million metric tons of illegal fish that gets into the legitimate supply chain—or to put a dollar figure on it, an estimated \$10 billion to \$23.5 billion dollars of illegal fish are caught each year.

That translates into economic losses of \$40 billion to \$94 billion US dollars annually.

This kind of “leaky” supply chain undermines long-term fisheries management, as illegal harvesters operate with impunity. Responsible fishers wind up competing in the marketplace with cheaper IUU product that appears as legitimate.

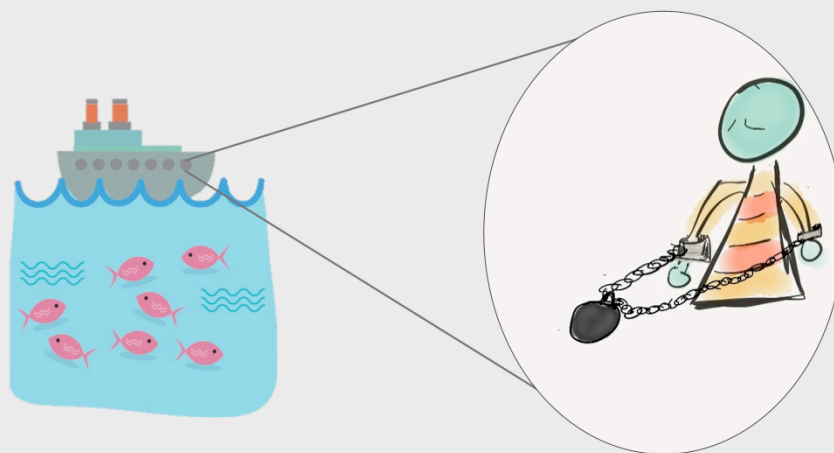
Fraud and mislabeling



One third of seafood in North America is mislabeled, with some species or regions having rates of mislabeling of over 50%. Mislabeled seafood is product that isn't what it says it is or didn't come from where the label notes. The innocent version of this is the result of data errors and mistakes that happen due to poor data capture and sharing systems, in other words, a lack of robust end-to-end traceability.

Of course you don't get such high rates of misidentified fish through labeling accidents alone. As noted a few moments ago, intentional switching of information—otherwise known as fraud—is relatively easy to commit when data and product are not linked effectively. Once the skin is removed from a fish, chefs or retail outlets can't tell what it is. It's easy to swap a lower quality product with a higher quality one to make a bigger profit; or in many cases, a supplier will swap species (but not tell the client) simply to fill an order due to the mismatch of supply and demand that is characteristic of seafood supply chains.

Human rights abuse



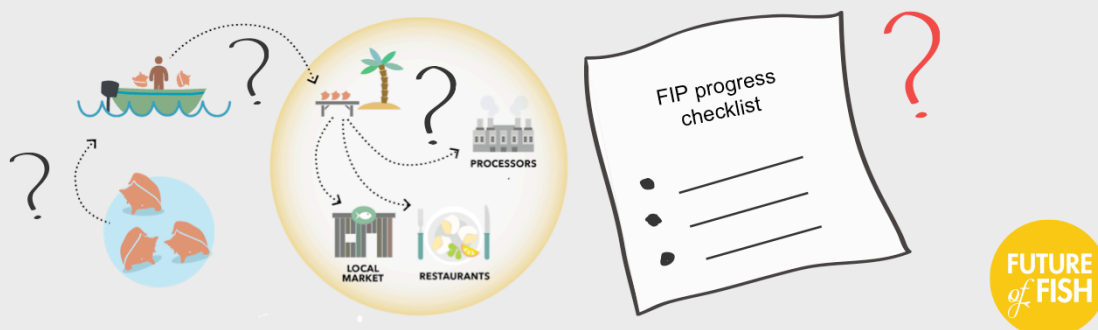
Recent media and academic publications have revealed the disturbing prevalence of forced labor and other social ills within fishing and seafood companies around the world. In fact, the Associated Press won a Pulitzer prize for its coverage of the subject in 2015.

In part, these problems are due to the globalized and fragmented nature of seafood supply chains, and the lack of international regulation and enforcement of labor protections.

Seafood companies know and trust their direct trading partners, but few have visibility beyond one step back in their supply chains. Without this visibility, knowing where seafood has come from beyond their direct supplier is impossible. Unacceptable labor practices happening within the walls of processing plants, warehouses, or on deck of vessels go undetected, hidden under layers privacy and a lack of demand for transparency by other actors in the supply chain.

The Problems

Lack of verification of FIPs and sourcing commitments



Seafood companies looking to engage in best or better practices are establishing sourcing commitments and adjusting their sourcing policies to include fisheries that are considered well-managed, or increasingly, part of a fishery improvement product (referred to as FIPs). In addition, governments, industry, and NGOs have also just started to implement Aquaculture Improvement Projects (known as AIPs or A-I-Ps) in some regions. These improvement projects require participation from multiple stakeholders, including NGOs, key members of a supply chain, and government actors. These stakeholders come together with the goal of using private sector influence to change practices on the water to improve long-term management and secure these changes by cementing them into new policies. Examples of such policies could be B-to-B purchasing policies within a supply chain, internal CSR, or government regulations. Fisheries and farms involved in an improvement project must prove they are making progress towards environmental goals—something that requires accurate and accessible data reporting.

Blunted market incentives

Is this fish sustainable?

Who caught this?

I would pay more for slave-free shrimp!

Is it fresh?



Market forces can be used in multiple ways to reward actors who are behaving responsibly: Price premiums, greater or more diverse market access, and more stable, long-term contracts are a few.

But these incentives are blunted by lack of consistent labeling and the aggregation of seafood. The fact that seafood supply chains are much more like a complex web than a nice linear chain means that keeping track of product and data is very difficult. In the end, more responsible players' product is mixed with product from irresponsible actors, making rewarding good behavior impossible.

These conditions also make convincing new actors within the seafood industry to join efforts to change their practices for environmental or social gains difficult.

The value of verified, reliable information to the consumer cannot be underestimated. Information that relates to health, local or non-local origin of the product, date of catch (i.e. freshness) and other qualities of



Emerging Solutions

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Here's the best part. Emerging Solutions.

Addressing the aforementioned problems quickly and effectively will require NGOs and businesses work together within supply chains to implement robust traceability systems. The good news is many wins can result from this transformation and several emerging solutions are already in play.

Potential wins

- Reduce IUU, human rights abuses, overfishing
- Capitalize on better data for business efficiencies
- Manage risk and build marketing opportunities
- Secure better data for scientific purposes
- Influence evolution of the field



Some of those major wins include:

Reduce IUU, Fraud, which helps reduce risk to businesses and improve fisheries management

Better data for science and businesses: which can lead to improve fisheries management, more stable supplies for businesses, and greater business efficiencies

New marketing opportunities

And, by engaging in this work, NGOs as well as pioneer companies have the ability to shape the evolution of the traceability landscape—to be both business friendly and effective.

No silver bullet exists that will solve all the problems at once; however, in concert, innovations and initiatives currently in development are building the ecosystems that can tackle all these issues and create the large-scale impact we need.

Emerging Solutions

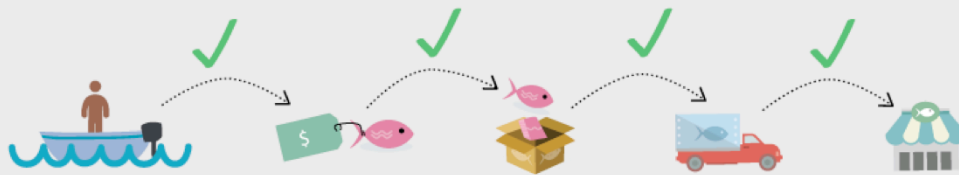


No single business "has" traceability.



Solving the traceability challenge requires that we reframe how we approach traceability. Often, traceability is talked about as something a company “has,” but what is usually meant is that the company can trace product one step forward and one step back. This level of traceability will not solve the environmental and social issues, as well as business risks, we want to address.

Traceability is a supply chain decision



Those problems require robust, end-to-end traceability, which is a supply chain decision. Not a single business decision. And it requires that multiple functions are in place across the full chain.

Emerging Solutions

The Five Core Functions of Traceability



As we look at traceability through technology and business lenses, we can see five specific functions that together can root out fraud, mislabeling, IUU, and human rights abuses and prove the source of responsibly harvested fish across a supply chain.

Emerging Solutions

Vessel/farm data capture

Catch-level data uploaded at the source



Product/data pairing

Physically attaches data to the product



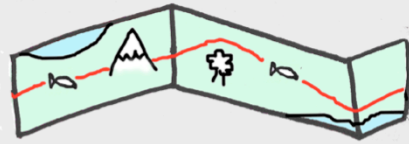
Internal traceability

Intra-company, one-up, one-down tracking



Supply chain visibility

Supply chain management and visibility



Data verification

Capacity to cross-check and verify data accuracy



These five functions are:

Vessel **or** Farm-level Data Capture

Product-Data Pairing

Internal Traceability

Supply Chain Visibility

Data Verification

Emerging Solutions



Vessel/farm data capture



This is information captured right at the source—be it where fish is landed dockside, passed to another vessel, or harvested from a farm. Having this data allows supply chain and government officials to know the boat path and detailed, verified (against a fish ticket, for example) data about a specific catch or product. Detailed information at this level ensures that legal product and accurate data is entering the supply chain from the start.

Vessel/Farm data capture

- **Accomplishes:** ability to know boat path and detailed and verified data about a specific catch or product
- **Beneficiaries:** fishermen wanting to sell differentiated catch; mid-chain players or end-buyers wanting verifiable information; consumers looking for story



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Key beneficiaries include:

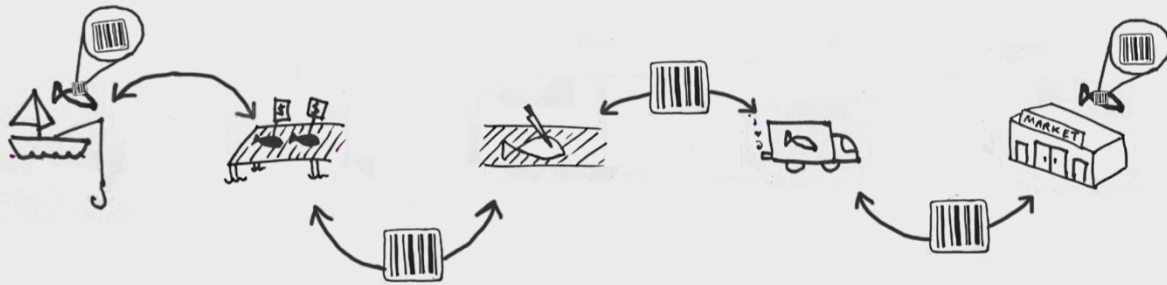
Fishermen wanting to sell differentiated catch

Mid-chain players or end-buyers in need of verifiable information (such as to manage risk)

Consumers looking for details about origin of their food purchases for health, safety, or other reasons.

Several third-party traceability companies specialize in vessel and farm-level data capture. For some, their focus is on boat activities: where the vessel went, speeds and patterns of fishing that can provide insight into

Emerging Solutions



Product/data pairing



To ensure integrity of the data (and the product), information must be physically attached to the product as it moves through the supply chain. This can be achieved with a barcode, RFID chip, QR code, or alphanumeric (human-readable) code that journeys with the product as it moves through the supply chain.

For high value and large individual species, the information can be attached to individual fish; for other product types, the data can be attached to the container that holds the product, but it must be done in a way that ensures product cannot be swapped out or otherwise removed from the container holding the product.

As product is transformed on the processing line, the same data that came in with the product should also go out with the product, with additional data added at each step, but never lost. This process might require new barcodes printed and affixed to different portions of a processed fish, or one barcode that accounts for the mixing of multiple

Product/data pairing

- **Accomplishes:** inventory control; quality control; identification of IUU, mislabeling and fraud; recall efficiencies; customer acquisition and retention; marketing advantage
- **Beneficiaries:** all players and stakeholders



Product-data pairing helps with:

Inventory control,

Quality control,

Identification of IUU,

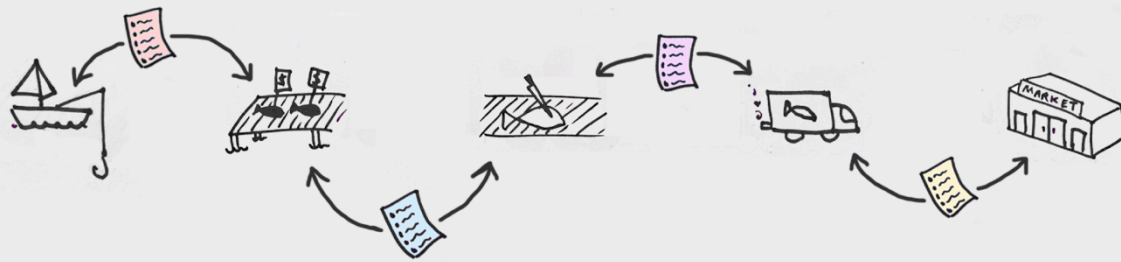
mislabeling and fraud reduction,

product recall efficiencies,

Customer acquisition and retention (by being able to provide rapid feedback on orders and inventory)

Marketing advantages

Emerging Solutions



Internal traceability



For many people in the industry, when they hear the word “traceability” they think: product recall. For decades, companies have had in place a system for tracking product into and out of their operation—whether it is paper-based or electronic. This is the one-up, one-down tracking and tracing that allows companies to manage their inventories and in many cases, meet regulatory requirements (especially food safety) in markets such as the USA, Europe, and Japan. Information is passed from one business to the next, but each business may code the information differently. Thus, there is no continuity of information across the supply chain. Recalls are possible, but must be conducted by going one node at a time through the supply chain.

The ability to identify a batch or lot of product within an operation, or to move piece-meal along the supply chain, doesn’t eliminate the weaknesses that allow for fraud, IUU, and other illegal practices that put human welfare, the environment, and businesses at risk.

Internal traceability

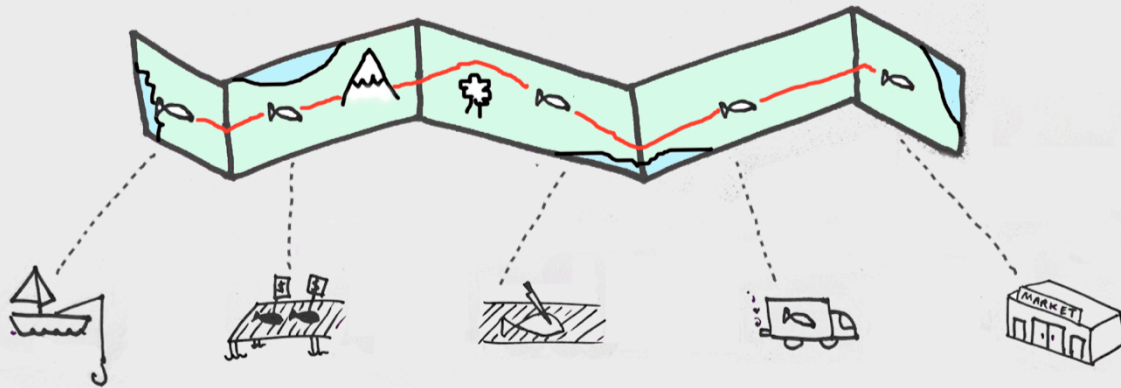
- **Accomplishes:** supply chain management, inventory control, operational efficiencies, health and safety compliance, audit facilitation
- **Beneficiaries:** supply chain players, government



Internal traceability can accomplish supply chain management, inventory control, operational efficiencies, health and safety compliance, and audit facilitation. It benefits supply chain players and government regulators. Many larger seafood companies have implemented electronic Enterprise Resource Planning, or ERP, systems to more easily manage their internal data flows and benefit from increased operational efficiencies that come from rapid access of their data. Smaller firms often use a combination of paper and electronic systems, or just paper.

Internal traceability does not always provide a means for sharing information across multiple supply chain actors. That requires external traceability, and requires communication among the systems used by the diverse actors in the supply chain.

Emerging Solutions



Supply chain visibility



Seafood products weave through a sprawling tangle of pathways that often wind from one global corporation down through multiple unnamed subcontractors and back out on the other side of the world. The opacity and complexity of the “chain” makes knowing all the companies that handled a product nearly impossible. It also means few fishers or fish farmers have any insight into where their product winds up.

The seafood industry is based on deeply-held, trusted relationships. And until very recently, most companies have been comfortable saying they trust their supplier. But recent exposés on human rights abuse, and the risk of IUU has created a demand for better risk management in the industry. One of the best ways to manage this risk, as well as root-out the social and environmental ills in the first place, is to know who is in your supply chain.

Supply chain visibility

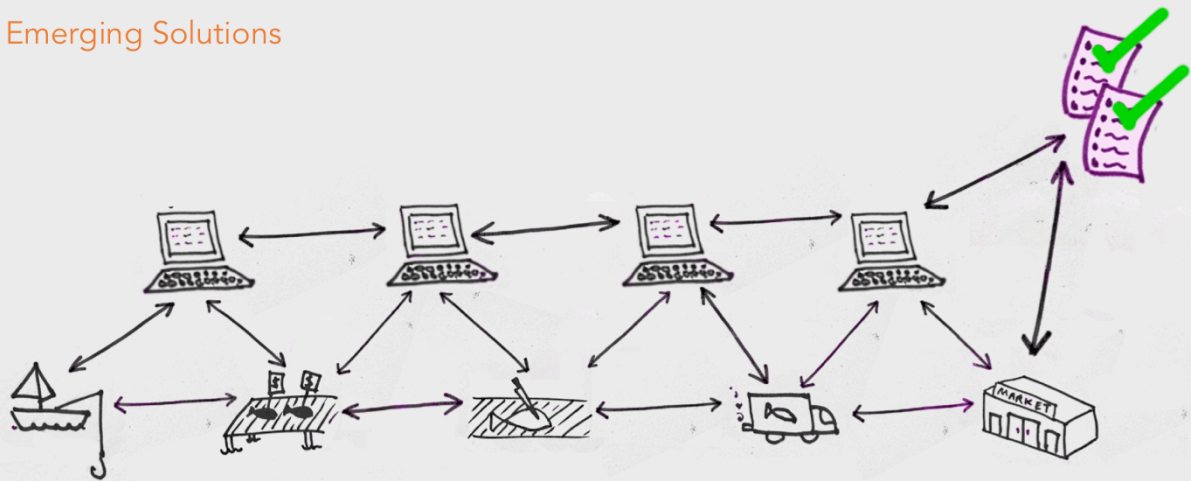
- **Accomplishes:** risk management, recall support, CSR commitment tracking, audit facilitation
- **Beneficiaries:** middle of chain to consumer



Supply chain visibility provides insight into which companies or facilities touch the product upstream and downstream from any actor in the supply chain. It can give information about the location of the facilities, the health and safety records, certification status, or other relevant data that helps to identify and ensure companies are dealing with supply chains composed of legal, upstanding organizations that are similarly doing their part to combat illegal or unsafe practices.

The benefits of supply chain visibility include risk management, recall support, sourcing commitment tracking, and audit facilitation. Middle chain players, brand owners, and consumers especially benefit from this core function.

Emerging Solutions



Data Verification



Data verification across the entire supply chain is necessary to serve as a check against the information that is entered at each node in the supply chain. Different levels and types of data verification exist, and range from policies that prevent back-dating or changing older records, to cross-checking information with a third party source. Verification is different from the functions built into electronic data systems that prevent incorrect data formats, such as a date with a five-digit year. Verification is about the legitimacy of the data itself, not just the formatting. It can take the form of DNA spot tests, mass balance checks, cross-checks with supplier or buyer records, or government landings data, as well as other approaches.

Data Verification

- **Accomplishes:** quality control; identification of IUU, overfishing, mislabeling, and fraud; customer acquisition and retention; marketing advantage
- **Beneficiaries:** players with story-driven branding



Robust data verification helps with:

quality control;

identification of IUU, mislabeling, and fraud;

customer acquisition and retention

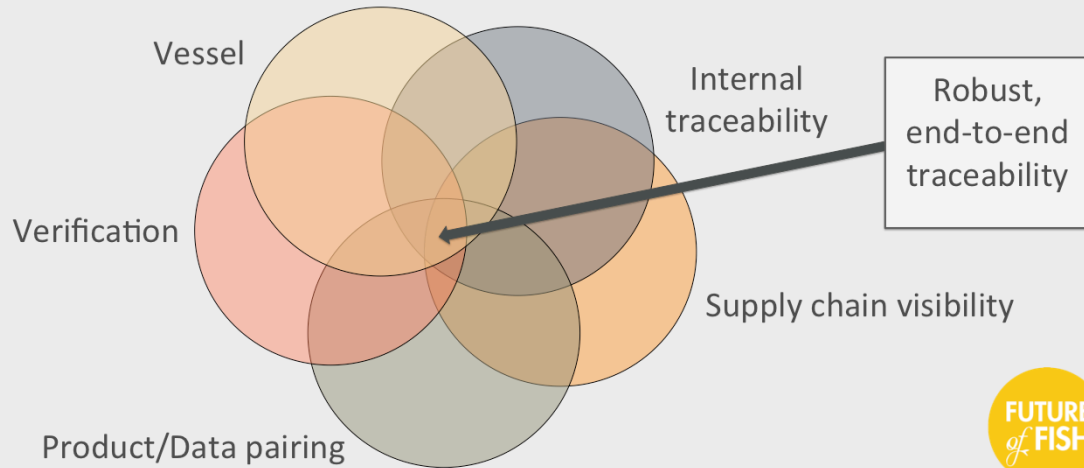
marketing advantages

risk reduction

Supply chain players especially poised to gain from data verification are story-driven brands looking to protect and validate their brand integrity.

Emerging Solutions

Traceability Requires an Ecosystem



Today, no single technology vendor or solution can provide all five functions. Instead, achieving that level of robust end-to-end traceability requires collaboration to assemble the technological backbone that can support legal, traceable, trustworthy fish.

Such an effort, however, requires more than just a technological fix. It requires collaboration: among technology vendors as well as among seafood companies within supply chains. The good news is that multiple initiatives are underway to help bring about the effective collaborations needed for interoperability.

Technology alone won't cut it

*Traceability is a technology challenge
and a people problem.*



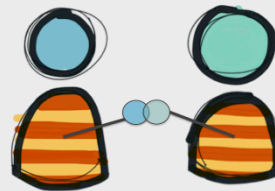
Several of the initiatives underway focus on the technology-side of the problem. The seafood industry currently relies on many different and proprietary data systems. This prevents robust, global-scale traceability from occurring, as each system does not necessarily communicate with the technology used by trading partners up or down the supply chain. Addressing this issue is the focus of several technology-oriented initiatives.

Other efforts target solutions for the people-side of the equation—the cultural, financial, and behavioral barriers that are preventing effective implementation of traceability solutions.

Both approaches are necessary in order to move global, whole-chain traceability forward.

Interoperability

"Collaboration is key"



Achieving robust end-to-end traceability requires integration of different technology systems to achieve effective data flow or access across the supply chain. This requires “interoperability”—the ability of different information technology systems or software programs to talk to each other for the purpose of exchanging, understanding, and using data. That’s the IT side. Interoperability also depends on businesses agreeing to work together to align their data expectations, agree on key vocabularies, and share appropriate data. That’s the “people” side.

Technology Focused Initiatives

- Traceability Technology Architecture
- Catch Documentation and Traceability Scheme
- Pilot Deployments



Below are three leading efforts focused on the technology-side of global interoperability.

Building An Interoperable Seafood Traceability Technology Architecture:
led by the Global Food Traceability Center (GFTC)

Designing a catch documentation and traceability (CDT) system: a
program under USAID

And Piloting Full-Chain Traceability Deployment: Future of Fish

Traceability Technology Architecture

- Led by Global Food Traceability Center
- Establishes standards, protocols, specifications, guidelines, and common language
- Recommends next steps via Issues Brief and informs Global Dialogue



GFTC has conducted extensive research and analysis, including of traceability systems in other industries such as pharmaceuticals, to determine what components are necessary for a global framework that would allow for communication among various data systems in the seafood supply chain. GFTC's February 2016 Issues Brief explains that this architecture requires two steps:

Establishing a series of standards, protocols, specifications, and guidelines that provide computerized information systems with the ability to communicate effectively by sharing standardized packages of data; and

Establishing a common language (called an "ontology") through which computer systems can communicate.

The Issues Brief also includes recommendations for how the industry can best move towards building the technology architecture necessary to support whole chain traceability and interoperability. These recommendations will feed into the recently launched Global Dialogue,

Catch Documentation and Traceability Scheme

- Led by USAID, part of Oceans and Fisheries Partnership
- Seeks to establish a financially sustainable model
- Focuses on Asia-Pacific region



As part of the larger USAID Oceans and Fisheries Partnership project, USAID is working to develop a financially sustainable regional catch documentation and traceability (CDT) scheme in Asia to combat IUU fishing and seafood fraud. Still in its early stages, this effort seeks to create a scalable model for a CDT system, to be piloted in the Sulu-Celebes Seas and expanded to other regions of high biodiversity importance in the Asia-Pacific.

USAID is in consultation with GFTC to ensure the standards and architecture for this program align with the Traceability Technology Architecture work of GFTC as well as with other NGOs to test deployment and iterate on the CDT system.

Pilot Deployments



- Recruit supply chain partners
- Create team of tech vendors to provide all 5 functions
- Deploy into supply chain



In addition to these two interoperability initiatives, Future of Fish is working with a select group of technology vendors to pilot deployment of multiple traceability solutions that together address all five core functions across two different supply chains. Technology vendors are working together to determine how to integrate their systems, helping to provide practitioner and on-the-ground insight into the interoperability challenge. These efforts are also closely coordinated with WWF, FishWise, GFTC, USAID, and other actors in the pilot fisheries to ensure alignment

Emerging Solutions: The People Problems

Initiatives Tackling the “People Side”

- The Global Dialogue
- Seafood Business Pod
- Presidential IUU Task Force
- Updated Common Vision



As noted, technology alone can't solve the problem of interoperability. Implementation of the working technology solutions and the developed architecture requires buy-in from seafood companies. And that requires overcoming major challenges that have nothing to do with technology, and everything to do with how people behave, make decisions, and operate within the larger seafood system.

The following initiatives are focused specifically on addressing the human-side of the interoperability and traceability challenge:

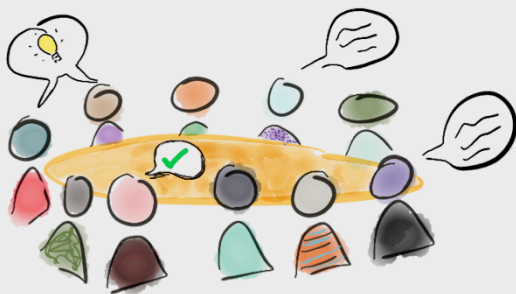
The Global Dialogue on Seafood Traceability and IUU Risk-Reduction:
a cooperative effort of World Wildlife Fund (WWF) and GFTC

Seafood Supply Chain Pod: Future of Fish

A New Common Vision: Conservation Alliance, under leadership of
FishWise

IUU Presidential Task Force: US Government

The Global Dialogue



- Led by WWF & GFTC
- Brings together industry experts & other stakeholders
- Guidelines for KDEs and more
- Recommendations for data access, security



The Global Dialogue is an effort to bring together industry actors and leading experts to build the framework for interoperable and cost-effective seafood traceability. As noted, implementation of frameworks and whole-chain traceability requires buy-in from the users of the system: namely, the seafood industry. To effectively and efficiently engage the diverse companies that make up the seafood industry, the Global Dialogue initiative will provide several avenues for participation across multiple geographies, with an anticipated timeline of approximately two years. The discussions will build off the recommendations within the Issues Brief produced by GFTC, and refine the technology architecture to best suit the needs of industry, as well as NGOs, governments, and other stakeholders.

Launching Spring of 2016, this effort builds upon two years of pre-planning meetings and workshops held across the globe. The primary goals are to provide:

Guidelines or standards recommended by the Dialogue that industry

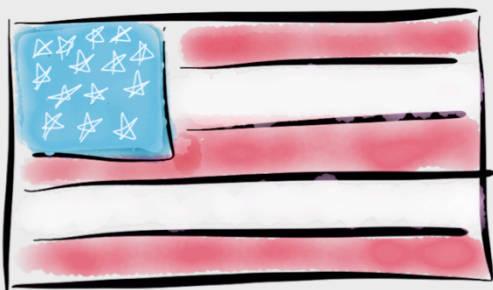
Seafood Business Pod



Future of Fish has convened several “pods” of innovators and entrepreneurs who are proving out the best practices, as well as the financial return, of traceability. These pods include teams of businesses, both technology vendors as well as seafood supply chain players, who are pioneering examples of how to get better data to flow through the system. Future of Fish works to connect these pilot projects to more mainstream players as each concept is proven.

Future of Fish’s work as an innovation hub and the connective tissue between cross sector players, is preparing both the seafood industry and the technology industry to be ready and willing to implement once international standards and directives have been established.

Presidential IUU Task Force



National traceability
program launches Sept.
2016



The presidential task force for combatting illegal, unreported, and unregulated fishing and seafood fraud was created in 2014. The purpose was to develop an action plan to prevent the sale of IUU and fraudulent seafood within the U.S. Market. In the final action plan the task force made 15 recommendations including expanding collaboration with other nations to combat illegal fishing, improving U.S. Government technology for tracking imported seafood, and, most relevant to this discussion, developing A national seafood traceability program.

The traceability program is scheduled to become final in september 2016 and will apply to all at-risk seafood entering u.S. Commerce. The goal of the program is to improve data collection and transparency within seafood supply chains so that at-risk products can be screened for legality, and naming/labeling accuracy. Importers will need to have chain of custody information available for at-risk products going all the way back to their harvest, as this information can be requested by the US government.

Updated Common Vision



- Retains six key steps
- Requests details on FIPs and AIPs
- Places stronger emphasis on traceability
- Adds social issues

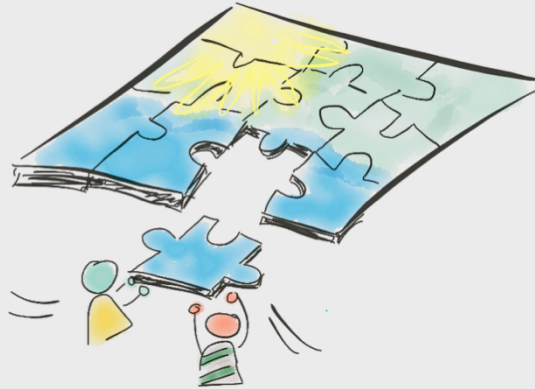


Nearly a decade ago, the Conservation Alliance for Seafood Solutions developed its Common Vision for Environmentally Sustainable Seafood. The Common Vision helped coordinate the actions of multiple NGOs in order to more effectively engage and support seafood industry partners in shifting their sourcing policies and practices to more sustainable fisheries and aquaculture operations.

The original Common Vision outlined six steps companies could take to create and implement a sustainable seafood commitment. Today, the Common Vision helps businesses representing 80 percent of the North American grocery and institutional food service markets make and deliver on those commitments.

When the Common Vision was initially released in 2008, many businesses had done little on sustainable seafood and the focus was primarily on the environmental aspects of sustainability. The landscape has changed dramatically in the past decade. Many businesses have

Summary: Emerging Solutions



The diverse but closely aligned group of initiatives currently tackling traceability offer a promising foundation upon which to build system-level change. We've said it before but just to hammer it home: No one company, organization, or government can implement full-chain traceability across the global seafood supply chain; but multiple NGOs, supply chain companies, and select government agencies can collaborate to pilot the technology and build the frameworks necessary for scaling the emergent solutions. As new industry innovations, government initiatives, and NGO projects develop, they too must be brought into the conversation to maximize the collective impact of the entire ecosystem of players.

NGOs seeking to deepen their involvement in traceability arena have many options for how they can most effectively contribute; their next steps will depend on their own organizational mission, their expertise, and the needs of their partners.



The various definitions, levels of understanding, values, costs, and perceptions about traceability currently represented in the seafood industry and among technology vendors, make the traceability conversation a difficult one.

But this complexity is exactly why it is so important that NGOs build common vocabulary and understanding with one another, and work in complementary ways to move the industry toward supply-chain level traceability, as opposed to promoting one-off adoption of discrete traceability systems.

Next steps

- Guide industry in self-assessment
- Assist businesses in recruiting their trading partners
- Identify fellow NGOs with partners in overlapping supply chains and collaborate



One way NGOs can do this is by guiding their industry partners to self-assess their traceability needs. FishWise is a leader in this arena and we hope to develop new tools to support this process in more detail soon. For now, NGOs can focus on these initial suggested first steps:

Assist seafood companies with understanding the attributes of their supply chains and what they most need their traceability system to accomplish. This includes evaluating what position or positions they hold, the types of seafood products they deal with, the types of fisheries that source those products, the level of vertical integration versus fragmentation in the supply chain, the level of traceability and technology they currently have, and other structural components of the system in which they operate.

Encourage industry partners to bring their own trading partners to the table, including those partners as far down or up the supply chain as possible. The more the conversation can move from an individual business decision to a supply-chain one, the better.

Next steps

Resources

- The full NGO Traceability Toolkit:
www.futureoffish.org/content/traceability-101
- Conservation Alliance Solutions for Seafood:
www.solutionsforseafood.org/social-resource-center
www.solutionsforseafood.org/traceability-resource-center



Today, NGOs working to promote more sustainable seafood must be able to speak as fluently about the role of traceability in combating overfishing as they do about alternative fishing methods, and why they matter. Hopefully, the NGO Traceability Toolkit, of which this presentation is but one part, will help individuals develop this expertise.

The traceability toolkit website contains additional tools and points to resources for further exploration, including the Conservation Alliance's [Social Resource Center](http://www.solutionsforseafood.org/social-resource-center) and [Traceability Resource Center](http://www.solutionsforseafood.org/traceability-resource-center). Please see the homepage listed here for more details.

Thank You

Contributors and Thanks

- FishWise for feedback and extensive content contribution for IUU Task Force, Verification of FIPs & AIPs, Common Vision, and Human Rights slides
- GFTC and WWF for feedback on emerging solutions
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Thank You

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Thanks for listening and feel free to contact our Strategy Director, Keith Flett with any questions.