

# A Sustainable Seafood Traceability System in Costa Rica

*Development and Implementation*

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## Introduction

The global seafood industry currently lacks a standardized, widespread method to easily trace the chain of custody of products that they purchase. With global overfishing leading to declining fish stocks around the world, it is vital for seafood providers to have the ability to identify and buy products from sustainable fisheries that are well managed, target abundant species, and fish in environmentally responsible ways. A tracing system that incorporates a combination of online inventory reporting and physical product tagging, augmented by independent supply chain verification, will give companies and consumers the information they need to make sustainable seafood choices.

Overfishing is costly. Altered fish landings have created economic hardships for fishermen and women worldwide. In addition, illegal, unreported, and unregulated (IUU) catches threaten the sustainability of many sensitive local fisheries. Increased tracing of seafood products has the potential to help alleviate these problems by giving suppliers and consumers relevant information that allows them to make sustainable choices.

The primary goals of the initial phase of this project are the development of a gap analysis in the current fishing industry in Costa Rica (including fisheries management criteria) as well as of recommendations for moving forward toward implementing a test system for a pilot traceability project. During this phase, current procedures will be outlined and compared to existing traceability models, standards, and regulations in Costa Rica and the U.S.

The ultimate goal of this project is to test the implementation of a seafood traceability system in Costa Rica (and perhaps Panama and Colombia) with practical experience, with real-life situations and challenges, and with a small number of participants at each step of the value chain (i.e., a small number of fishermen, a few processors, one or two distributors, and a large supermarket and/or restaurant chain).

## Challenges to Traceability

- The seafood industry has traditionally operated based on established relationships and secrecy, and supply chain information is often closely guarded. The idea that full traceability allows for more transparency up and down the supply chain has the industry concerned about confidentiality and the use of information for competitive advantage.
- Many companies are reluctant to invest in costly systems now as they are concerned that a majority of the industry will adopt a different system, which may result in that system becoming the industry standard. This would pose a problem for the companies that chose another traceability system.
- Currently, as expected, the processes on fishing vessels are focused on the catch. There is often no record keeping that would support traceability, with the exception of some sales receipt

information related to the catch, which is captured at the wharf or processing plant, depending on the buyer.

- Processors
  - (“Simple”): Receive product by the truck load and process these individually. Traceability of product is only possible by truck load and not the source. Frequently the fishing area and method are not identified. For example, there might be one acceptable method for some species but two or more for others. Once processing is completed, the product is identified by date, species, and weight. There is rarely any link to relate what was received to the final product. The information is usually tracked on paper.
  - (“Complex”): Product received on the dock from fishers is weighed and identified per fisher id number, fishing zone, date, etc. The product is then transported into holding tanks or cold storage where it can remain for several days. Storage bins are identified at this point and information on each fisher is kept on paper and/or in accounting systems.
  - In most cases, processors receive the product and log information on paper from the source {e.g., truck shipment, fisher (if possible), etc.}. Also, batches of product are often mixed together during the process and throughout the day of production, meaning the source is actually a combination of many sources. During processing, the product goes through with no traceability.

## Design Principles for Pilot Traceability System

The current fishing industry in Costa Rica is not fully ready to support traceability. Some participants will meet more of the ultimate requirements of standards and regulations than others. Depending on their current state, implementing a traceability system may require a combination of new computerized data collection systems, new processes, changes to existing processes, and possibly additional equipment and electronics, especially for processors. The key goals for a successful implementation of a traceability system are:

- Create a voluntary system
- Ensure products are traceable back to fish harvesters
- Satisfy consumer demand
- Ensure cost effectiveness
- Provide increased profit to fish harvesters and seafood businesses
- Meet regulatory requirements and international standards
- Promote sustainable fisheries
- Distribute costs and benefits fairly throughout supply chain

- Promote collaboration and transparency in the supply chain

## Supply Chain Infrastructure

The fishing industry in Costa Rica comprises many small- to medium-sized businesses who work in a complex process that involves multiple levels of transactions in the supply chain. There are many possible issues that potential participants may encounter in implementing a traceability program. Changes will likely include process and technology solutions to capture and link information properly, as well as many other questions that need to be addressed including:

- What standards are available and which do they need to follow?
- How will they adapt current practices without disrupting efficiency and speed?
- How much investment will be required?
- Can they afford it?
- What other requirements/standards will impact the industry in the future?

While this may seem daunting to potential participants, they are likely to have a basic understanding of the benefits and risks and may be willing to move forward with traceability systems. That is because many may also have ideas and expectations for additional benefits that may be realized with the required changes. The challenge is to implement systems and processes that are effective and efficient while at the same time simple to use and that can be quickly integrated, with as little disruption to business as possible.

### Harvesters

Artisanal fishing represents an important economic and cultural activity in Costa Rica with potentially low ecosystem impacts and locally important socioeconomic benefits as compared to industrialized fishing. Co-management, implying local participation and the sharing of control over resource exploitation between users and government, has been shown to be an essential component of an integral solution for improving effective resource conservation and fishery sustainability.

There is currently no electronic traceability information at the fisher or fishing vessel level. The only recorded information may be paper receipts from sales transactions on the wharf. From a traceability perspective, this is the very beginning of the supply chain, and there are few, if any, critical tracking events that occur here. That said, for sustainability and consumer certification, traceability to the source of the catch is important.

An initial gap analysis of harvesters should be conducted that aims to characterize the fishery and its history, including data on historical and current fishing practices and captures, socioeconomic and ecological parameters, and existing governance. The study would include surveys, semi-structured interviews with artisanal fishers, participative workshops and development of standards for local monitoring of fishing methods.

Fortunately, much of this information may already exist. A summary of a ten-year study conducted by Helena Molina-Ureña at the University of Costa Rica, San José was presented at *the 6<sup>th</sup> World Fisheries Congress: Sustainable Fisheries in A Changing World*, held in May 2012 in Edinburgh, Scotland. The study was conducted in three communities of Pavones Bay in Golfo Dulce (the Pacific trans-boundary region of Costa Rica and Panama) and its aims were participative management of local fisheries. The methodology was essentially as described above and contributed to the creation of a Federation of Artisanal Fishers and a Marine Area for Responsible Fishing (MARF), with which MarViva already has a partnership.

The data from the study includes a documentary film that portrays an international workshop organized with over 45 fishers and industry stakeholders. The 5-day workshop was part of a 10-year process to improve awareness and knowledge about best practices for resource conservation. Through a participative approach with an emphasis on fishers' involvement, feasible regional co-management action plans were developed and are now being implemented.

This is an ideal opportunity to obtain potential partners for the pilot study. Data from the study should form the basis of characterizing the fisheries and recruitment of fishers for the pilot (perhaps from the federation of fishers that was formed).

### **Buyers**

The lack of electronic record-keeping at the wharf is a primary weakness in the supply chain. Some information may be available from the broker or processor's receiving records, but this would still provide only partial traceability.

In order to establish full traceability, there must be a means of identifying not only the fisher or fishing vessel, but also details about the catch and method and to where and whom the product goes. To do this, fish or at least catch bins must be labeled to allow traceability for the next step in the supply chain, the processors.

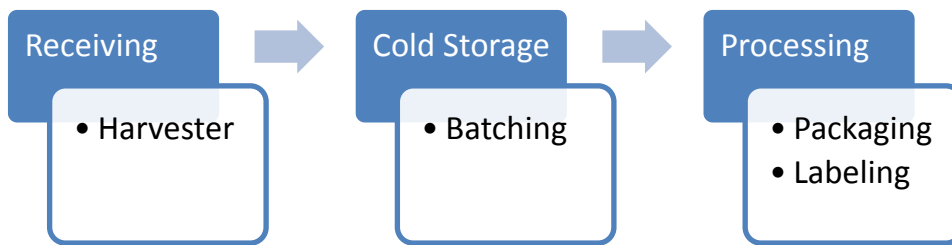
### **Processors**

Once again, the lack of electronic record-keeping is one of the biggest impediments to successful traceability. Records are often paper based, and while they may be entered electronically, it is often for accounting or productivity measurement, not traceability. Labeling, usually not meeting GS1 standards is currently required for package- and case-level containers and is also often used on pallets for shipping. This does allow for a certain level of traceability, as products can be tracked back to the processor from the next step in the supply chain. However, because of the batching methods, traceability beyond (or possibly even within) the processing plant is impossible.

Diagrams of typical production flows within processing plants appear in Figure 1. The white icons in the diagrams indicate points where traceability data should be captured. These points are called Critical Tracking Events (CTEs), coined by the U.S. Institute of Food Technologists (IFT). CTEs are those instances when product is moved between premises, is transformed, or is determined to be a point where data capture is necessary for effective tracing. For example, the harvester must record the location and

method of catch along with the date the fish were landed and species specifics. Receiving and cold storage would merely transfer the information and date received, so this is not a CTE. However, when batching occurs, it is critical to re-label as appropriate if species are combined and/or separated in the process. Processing involves transferring data from batching, but adding specific information to packaging including a GS1 Traceability Standard Global Trade Item Number (see section entitled “Developing Standards for Sustainable Fisheries in Costa Rica”).

**Figure 1. Processing Production Flows and Critical Tracking Events**



### **Third-Party Logistics: Brokers**

Brokers do not usually physically handle the product, but rather just control movement within the supply chain. This situation would not require any level of traceability as they are purely administrative tasks.

However, an example where traceability would be required is in the case where products are placed in storage. Then, similar to processing plants, product receiving and shipping must be tracked for traceability. This may be done using the existing labeling, however, if there is any type of repackaging, such as changing shipping containers, then new labeling would also be a requirement.

The major brokers in Costa Rica that export seafood to the U.S. are outlined in Table II.

## **U.S.— Costa Rica Seafood Import Statistics**

The U.S. National Marine Fisheries Service, Fisheries Statistics and Economics Division compiles seafood imports as reported by the U.S. Census Bureau. Data for 2011 seafood imports from Costa Rica indicate a total of 9,306,400 kilos valued at US\$73,242,698. These data correspond closely with those reported by PROCOMER Costa Rica who report 2011 U.S. seafood exports to be 10,848,100 kilos valued at US\$79,152,077.

Apparently, nearly 60% of seafood exported from Costa Rica is shipped via air freight, although we were not able to obtain specific shipping records for air shipments. The following tables outline exports shipped via ocean freight as recorded by U.S. Customs and U.S. Census data.

Table I illustrates the top thirty 2011 U.S. fish imports from Costa Rica listed by importer and shipped via ocean freight. The data are limited to fish and exclude shipments of shrimp or other crustaceans, shark/shark fins, sauces, and fishmeal.

**Table 1. 2011 U.S. Fish Imports from Costa Rica\***

Rank	Importer	Kilos	Shipments	Percent
1	<a href="#">ORE-CAL LOS ANGELES (Harvest of the Sea)</a>	737,085	25	22.76
2	<a href="#">GOYA FOODS INC</a>	211,033	6	7.29
3	<a href="#">RFA INCORPORATED</a>	177,596	5	6.14
4	<a href="#">SLADE GORTON AND CO INC</a>	168,399	15	5.82
5	<a href="#">SEA DELIGHT LLC</a>	144,457	5	4.99
6	<a href="#">PAPPAS RESTAURANTS INC</a>	251,550	3	7.83
7	<a href="#">CHIQUITA FRESH NORTH AMERICA LLC</a>	119,931	3	4.14
8	<a href="#">EL TESORO TROPICAL</a>	115,633	6	4.00
9	<a href="#">BEACON FISHERIES</a>	89,347	11	3.09
10	<a href="#">LOS ANGELES FISH COMPANY</a>	84,594	2	2.92
11	<a href="#">JOHN NAGLE CO</a>	84,171	5	2.91
12	<a href="#">PLANET GOURMET INC</a>	75,752	3	2.62
13	<a href="#">SOUTHCOAST FISH COMPANY INC</a>	74,456	3	2.57
14	<a href="#">GOYA GOODS</a>	71,991	3	2.49
15	<a href="#">INCREDIBLE FISH</a>	61,164	5	2.11
16	<a href="#">JUN HE ENTERPRISES CO LTD</a>	50,706	1	1.75
17	<a href="#">CLEANFISH INC</a>	47,414	1	1.64
18	<a href="#">PEPPERS UNLIMITED OF LOUISIANA INC</a>	47,300	1	1.63
19	<a href="#">PREFERRED FREEZER SERVICE</a>	43,964	1	1.52
20	<a href="#">CHEX FINER FOODS INC</a>	43,058	4	1.49
21	<a href="#">CMA CGM</a>	38,272	1	1.32
22	<a href="#">GAMMA SEAFOOD CORP</a>	32,978	3	1.14
23	<a href="#">ORE CAL CORP</a>	25,075	3	0.87
24	<a href="#">STAVIS SEAFOODS</a>	23,058	1	0.80
25	<a href="#">BUDDY GANDY SEAFOOD INC</a>	22,046	1	0.76
26	<a href="#">OCEAN BISTRO CORP</a>	18,519	1	0.64
27	<a href="#">ORE CAL CORPORATION</a>	15,287	1	0.53
28	<a href="#">MARPECA MIAMI CORP</a>	8,426	1	0.29
29	<a href="#">CARDON INTERNATIONAL</a>	5,758	1	0.20
30	<a href="#">STOKES FISH CO</a>	2,280	1	0.08
<b>Grand Total</b>		<b>3,776,931</b>		

\* Ocean freight shipments only  
Source: Urner Barry Foreign Trade Data



In order to implement a traceability system for fish exported from Costa Rica, it is necessary to understand the business relationships (i.e., supply chain) of Costa Rican exporters. Table II links importers in Table I with Costa Rican exporters and their third-party logistics partners. While we were not able to obtain data for air shipments, we will assume that the business partnerships outlined for ocean freight are the same as those for air for the purposes of establishing a traceability system.

**Table II. 2011 Seafood Exports from Costa Rica to the United States\***

Exporter	Importer	Third Party Logistics	Wt (kilos)
Sardimar SA	Goya Foods	Reliable Custom	211031
	Planet Gourmet	Reliable Custom	125809
	El Tesoro Tropical	Reliable Custom	115633
	Chex Finer Foods	Reliable Custom	80240
	Goya Goods	Reliable Custom	74994
	Goya Foods Florida	Reliable Custom	47994
	Ital FoodJohn Nagle Co	Reliable Custom	63672
<b>Subtotal</b>			<b>719373</b>
Industrias Martec SA	OreCal Corp	HPL Hellmann	126360
		Flegenheimer Intl	40382
	Slade Gordon	Vandegrift	168399
	Los Angeles Fish	Miami Intl Brokers	84594
	Ore-Cal (Harvest of the Sea)	Flegenheimer Intl	536225
	Pappas Restaurant	LE Coppersmith Inc.	251550
	Beacon Fisheries	Miami Intl Brokers	201421
<b>Subtotal</b>			<b>1408931</b>
Terrapez SA	RFA Incorporated	American Custom Br	413414
	Preferred Freezer Se	Miami Intl Brokers	40964
<b>Subtotal</b>			<b>454378</b>
TicoFrut	Tampa Juice Service	Tampa Juice Service	290860
<b>Subtotal</b>			<b>290860</b>
Exportadora Frumar	Sea Delight LLC	Alpha Brokerage	321081
	Southcoast Fish Co	Alpha Brokerage	74456
	Gamma Seafood	Gamma Seafood	38060
	Stavis Seafood	Alpha Brokerage	23058
	Cardon Intl	Alpha Brokerage	10615
	Stokes Fish	Alpha Brokerage	2280
	Marpesca Miami	Townsend Logistics	45419
	<b>Subtotal</b>		
Tropical Seafood Export SA	Buddy Gandy Seafoo	Buddy Gandy Seafoo	22046
	Ocean Bistro Corp	Damco	131633
<b>Subtotal</b>			<b>153679</b>
Exportadora PMT SA	Tropic Star Seafood	Alpha Brokerage	43210
	Incredible Fish	America's Custom	61164
	Eastern Overseas Mk	Alpha Brokerage	43210
<b>Subtotal</b>			<b>147584</b>
Jun He Enterprises SA	Peko Internacional S	Jun He Enterprise	50706
	Exportaciones Marinas	Red Chamber	36451
<b>Subtotal</b>			<b>87157</b>
<b>Total Weight (kilos)</b>			<b>3,776,931</b>

\*Ocean freight only.

Source: Urner Barry's Foreign Trade Data; licensed to MarViva Foundation, 2012.

## Potential Costa Rican Participants in MarViva's Seafood Traceability Pilot

### **Industrias Martec, S.A.**

As seen in Tables I and II and according to U.S. Customs and the U.S. Census Bureau, the largest fish processor/exporter in Costa Rica is Industrias Martec, S.A. Martec's primary receiving plant is in Puntarenas and their only processing plant is in Quepos; hatchery sites and retail stores are located throughout Costa Rica. More than 50% (703,000 kilos) of Martec's shipments in 2011 were to their primary importer in the U.S., Ore Cal Corporation (also dba Harvest of the Sea). Martec major exports (entirely as fillets) are mahi mahi, snapper (silk and pacific lane), swordfish, and tuna (primarily as frozen steaks).

In setting up a traceability pilot, it would be easiest to begin with one exporter. MarViva has spent some time in Martec's offices and it is ideal for the pilot because a majority of its product goes to one major importer (i.e., Ore Cal Corp) in the U.S.

### **Exportadora Frumar, S.A.**

As seen in Tables I and II, Exportadora Frumar, S.A. exported 515,000 kilos of frozen fish to the U.S. in 2011. Based in Alajuela, Frumar's principal customer is Sea Delight, LLC (62%), although the majority of Sea Delight's imports come from Asia. Frumar exports most species of locally caught fish as "fish nesoi, bone in" (Not Elsewhere Specified or Included). An advantage of working with Frumar would be their close proximity to MarViva's offices.

### **COLIPESA**

There is a third major exporter/processor, COLIPESA, which is located in Limon. COLIPESA is a seafood export company. They take orders from their customers, buy the fish from large fishing fleets, transport the fish to the processor, and then ship the fish to customers. They are a very large exporter of tuna, mahi mahi, and other important species. For example, they ship 32+ containers of frozen tuna monthly. Each container holds 19,000 kilos net fish weight (i.e., not including the weight of the container or the gel packs that keep the fish frozen). Unfortunately, their shipping statistics were not available through the Trade Register subscription services. For some reason, neither U.S. Customs nor the U.S. Census bureau has records under this exporter name. Their USA trading company is JPIERCE INVESTMENTS, INC of Miami, FL., [www.jpierceinvestments.com](http://www.jpierceinvestments.com).

## Potential U.S. Participants in MarViva's Seafood Traceability Pilot

### **Current Partners of Costa Rican Exporters**

#### **Ore-Cal Corporation dba Harvest of the Sea**

Based in Los Angeles, CA, Ore-Cal Corporation (dba "Harvest of the Sea") is an environmentally responsible processor/wholesaler. Their website claims a "Commitment to Social & Environmental Responsibility & Sustainability." ("At Harvest of the Sea we are committed to the long-term stewardship of our seafood resources and believe in using environmental & socially friendly methods that ensure their sustainability"). Interestingly, Harvest of the Sea is primarily a food service retailer and wholesaler. What began in 1961 as "The Fisherman's Outlet", a walk-up fish market, is today both an award winning landmark restaurant and the cornerstone of Harvest of the Sea's business which also includes wholesale sales of fish. Fish not sold/served at this store is distributed wholesale to other seafood restaurants in the U.S. Ore-Cal Corp would be an ideal potential participant for the traceability pilot. They are one of the primary importers of Costa Rican seafood, and they represent the end user/customer as well. As a wholesaler, they have distribution connections to other food service outlets in the U.S. They also have cutting-edge sensibilities as seen from this statement on their website. "The core values of founder and fisherman Bill Shinbane continue to drive industry standards and set Harvest of the Sea apart from other seafood companies."

#### **Slade Gorton, Inc.**

Should MarViva opt to work with a traditional importer/distributor/manufacturer in the U.S., an appropriate candidate would be Slade Gorton, Inc., Martec's fourth largest customer. Based in Boston, MA, the Slade Gorton name encompasses a family of retail and foodservice brands. Within their own production facilities, they process an extensive line of seafood entrees that are then shipped to retailers and food service outlets throughout the U.S. Therefore, like Ore-Cal, Slade Gorton represents the importer, processor, distributor, and final customer in the supply chain. Slade Gorton is also a committed supporter of ocean sustainability. The corporation was one of 17 global private sector supporters of the recent Rio +20 Conference "Global Partnership for the Oceans Initiative."

#### **Pappas Restaurant**

Pappas Restaurant, based in Houston, TX, imported 252K kilos (nearly 8% of total imports from Costa Rica) of fish from Costa Rica in 2011, all from Industrias Martec. Their imports were primarily frozen mahi mahi and snapper fillets. Research indicates that restaurants in general are willing to spend up to 15% more for fish that is certified as sustainably caught. (Supermarkets are interested in buying responsibly but their overheads do not allow them to pay more for sustainable product.) Pappas Restaurant is a high-end, white tablecloth chain that caters to high-income, well-informed customers. As such, it would be an ideal candidate as an end user in the supply chain.

#### **Potential Participants Not Known to be Trading Partners with Costa Rican Exporters**

The following are corporate partners of the New England Aquarium. Once the pilot has established fishers who follow standards of sustainability (existing or those developed by MarViva), it would be ideal to engage one or more in the pilot or rollout.



**[Ahold USA Retail, Inc.](#)**

Since 2000, Ahold USA has partnered with the New England Aquarium to identify and improve sources of sustainable seafood for their retail grocery stores. Ahold USA Retail operating companies include Stop & Shop, Giant Food Stores, Giant Food and Martin's Food Markets. Visit [www.stopandshop.com](http://www.stopandshop.com) and [www.giantfoodstores.com](http://www.giantfoodstores.com).



**[Darden Restaurants, Inc.](#)**

The New England Aquarium has been advising Darden Restaurants, the world's largest full-service restaurant company, on seafood sustainability issues since 2005. Darden Restaurants owns and operates Red Lobster, Olive Garden, Longhorn Steakhouse, The Capital Grille, Bahama Breeze, and Seasons 52. Visit [www.generationcommitment.com](http://www.generationcommitment.com).



**[Gorton's, Inc.](#)**

Founded in 1849, Gorton's is one of America's oldest continuously operating companies. Headquartered in Gloucester, Massachusetts, Gorton's continues to be the trusted leader in the seafood industry, providing high-quality, great-tasting seafood. Gorton's seafood products are available nationwide in grocery stores. Visit [www.gortons.com](http://www.gortons.com).



**[Sea Port Products Corporation](#)**

Sea Port Products Corporation is a leading importer of seafood products from around the world, supplying a full line of frozen seafood to both the food service and retail markets. Visit [www.cport.net](http://www.cport.net).

## **Seafood Sustainability Standards and Certification Programs**

In response to growing public awareness of the negative impacts of irresponsible fishing, an increasing number of market-based ecolabels and sustainability certification programs for wild capture seafood products have been created to try to stem the decline. The concept behind such product labeling schemes is to provide economic incentives to producers and the seafood industry to adopt more sustainable fishing practices while safeguarding or enhancing access to consumer markets.

For the MarViva traceability pilot study, it is unrealistic to assume that the globally established seafood rating and scoring programs and/or seafood certification schemes would be suitable for local fisheries. However, for the sake of completeness, the following comprise the accepted (and sometimes competing) programs that should be considered after the traceability pilot is successfully implemented.

### **Seafood Rating & Scoring Programs**

#### **Seafood Watch by Monterey Bay Aquarium**

The Seafood Watch program researches and evaluates wild-caught and farmed seafood. The goal is to shift the buying habits of consumers and businesses to support sustainable fisheries and aquaculture operations. Ultimately, Seafood Watch would rank Costa Rica's entire fishery (ranking separately by method used and species according to established criteria) and thus this is a long-term goal.

#### **Blue Ocean Institute**

Blue Ocean Institute developed a comprehensive seafood analysis and methodology referred to as the "Guide to Ocean Friendly Seafood." This is similar to Monterey Aquarium's Seafood Watch Guides.

#### **New England Aquarium**

The New England Aquarium strives to improve the environmental responsibility of seafood supply chains and provides sustainable seafood advice to some of the world's largest seafood retailers, restaurant chains, and suppliers (see section entitled "Potential Participants that Are Not Known to be Trading Partners with Costa Rican Exporters"). A partnership with New England Aquarium is feasible because MarViva has already had discussions about suitable projects.

#### **FishWise**

FishWise is a nonprofit organization designed to improve the sustainability of seafood carried by retailers, distributors, and producers using the most credible certification and ratings available by government, industry, and nongovernmental organizations. FishWise uses Seafood Watch ratings in its programs.

## **Seafood Certification Programs**

### **Food Alliance**

Food Alliance is a nonprofit organization that certifies farms, ranches, food processors, and distributors for sustainable agriculture and management practices. They have developed a certification program for oysters, clams, and mussels and are currently evaluating practices of fisheries (principally in the U.S.).

### **Marine Stewardship Council (MSC)**

The Marine Stewardship Council operates a global seafood certification program where wild capture fisheries can become certified as sustainable. Fisheries are certified against a rigorous, scientific methodology by an independent third-party accredited certifier during the MSC Full Assessment process. The MSC sustainable fisheries standard has three overarching principles that every fishery must prove that it meets: sustainable fish stocks; minimizing environmental impact; and effective management. The cost of application for certification tends to be prohibitive for small fisheries and the timeframe is lengthy. There are no fisheries in Costa Rica that are MSC certified. However, the spotted snapper fishery in Guiones, with the help of the Marine Turtle Resoration Program (Pretoma), are currently working toward MSC certification.

### **Friend of the Sea**

Friend of the Sea is a nonprofit nongovernmental organization that promotes the conservation of marine habitats by means of market incentives, in particular the certification and promotion of sustainable seafood and products from sustainable fisheries and aquaculture. Friend of the Sea is currently a significant sustainable seafood certification scheme in the world, having assessed more than 10 million MT of wild-catch and 500 thousand MT of farmed products.

### **AIDCP**

The Agreement on the International Dolphin Conservation Program, a legally binding multilateral agreement that entered into force in February 1999, mandated a tuna certification program. The Inter-American Tropical Tuna Commission (IATTC) provides the Secretariat for the program. All participating states have the duty to take, or to cooperate with other states in taking such measures as may be necessary for the conservation and management of living marine resources. However, certification has been granted to some tuna caught with purse seines in Costa Rica.

The countries and regional economic integration organizations participating in the Agreement on the International Dolphin Conservation Program (AIDCP) developed a program to certify and label tuna caught in the eastern Pacific Ocean consistent with the AIDCP and without mortality or serious injury to dolphins. The AIDCP Dolphin Safe Tuna Certification is supported by a comprehensive and transparent multilateral tracking and verification system administered by member governments and the treaty organization that ensures full consumer confidence in the AIDCP Dolphin Safe label and the certification behind it.

## **Dolphin Safe of Earth Island Institute**

Earth Island Institute (EII) monitors tuna companies around the world to ensure that tuna is caught by methods that do not harm dolphins and protect the marine ecosystem. EII standards prevent harm to dolphins and are adhered to by more than 90% of the world's tuna companies.

EII has established a tuna monitoring program with staff monitors around the world who observe operations at tuna canneries, offloading ports, and cold storage facilities, as well as on board fishing vessels and transshipment sites, to ensure that tuna supplies are indeed "Dolphin Safe." It is one of the largest private food monitoring systems in the world. It works with tuna companies - import associations, fishing fleets, canners, and brokers - to establish "Dolphin Safe" policies for each company.

## **Developing Standards for Sustainable Fisheries in Costa Rica**

### **GS1 Traceability Standard**

GS1 standards are the "common language of business" and provide the framework required to support the traceability business process. This industry best practice implementation guideline is based on the GS1 Global Traceability Standard (GTS; [www.gs1.org/traceability](http://www.gs1.org/traceability)). Developed by industry, the standard defines the globally accepted method for uniquely identifying:

- Trading partners
- Trading locations
- Product identification (i.e., species)
- Logistics
- Inbound and outbound shipments

The GS1 GTS also defines the essential information that must be collected, recorded and shared to ensure "one step up, one step down" traceability. The standard is applicable to companies of all size and geographical location.

GS1US supports the adoption and implementation of the GTS and, together with the National Fisheries Institute, will provide important resources to enable members of the supply chain understand the most effective way to implement traceability with distribution channel participants.

### **Best Practice Models**

Because fisheries in Costa Rica tend to be small- to medium artisanal operations, it is likely that basic standards for sustainability will need to be developed and implemented by MarViva (or a suitable partner) and monitored by a third-party evaluator. Therefore, the recommendation is to follow one or more of the following "best practices" models to develop standards suitable for local artisanal fisheries.

## **Naturland**

Developed for artisanal fisheries in Denmark, Naturland's scheme is a "best practice" model that could easily be adapted for fisheries in Costa Rica. As other capture fishery programs had left a gap by certifying very few artisanal fisheries, Naturland decided to set up a certification program for small-scale capture fisheries.

Sustainability in the sense of Naturland's standards includes the ecological, social, and economical dimension of fisheries. Ecological sustainability requires that not only the stock of target species, but also the other components of the ecosystem are maintained in their integrity. An additional aspect is safeguarding fish as a high-value food item, not impaired by environmental toxins or critical processing methods, additives, etc.

In November 2006, the Naturland Assembly of Delegates adopted the first "Standards for Sustainable Capture Fisheries." The standards not only address the responsible management of natural resources and the protection of the entire aquatic ecosystem, but also the social aspects of fisheries (e.g. in developing countries). Social sustainability of a fishery means that those involved encounter fair working conditions, and that the livelihood of the broader society is not negatively impacted. Economical sustainability means that the marketing of fishery products facilitates stable relationships between the members of the value chain, characterized by mutual responsibility and commitment.

### **UK Seafish Industry Authority: Responsible Fishing Scheme**

In order to provide the seafood industry with a tool that allows fishing vessels to prove their responsibility to the onward supply chain, the UK Seafish Industry Authority developed their "Responsible Fishing Scheme" ([www.seafish.org](http://www.seafish.org)). The scheme aims to raise standards in the catching sector, enabling those within the seafood supply chain to demonstrate their commitment to the responsible sourcing of seafood. The aim is that, over time, accreditation will become a condition of supply. The scheme has been designed to cover a diverse range of vessels and fisheries.

A number of "Good Practice Guides" (e.g., demersal fishing, pelagic fishing) have been published but they tend to be food safety/production oriented. Still, they could serve as a model for education materials for the fishing sector in Costa Rica.

For recommendations for fisheries management and sustainability in fishing methods, the group relied on the somewhat dated and rather general "Code of Conduct for Responsible Fisheries (FAO)" (1995).

### **Regulatory Criteria for Standards**

#### **FAO Guidelines on Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries (2005)**

In 2009, the World Wildlife Fund (WWF) undertook a comprehensive study of sustainable seafood certification schemes and sustainable fisheries standards. The result was the publication of a full report entitled "Assessment of On-Pack, Wild-Capture Seafood Sustainability Certification Programmes and Seafood Ecolabels".



To advance sustainable fishing and increase confidence in seafood ecolabeling, WWF developed a set of criteria that reflect ‘best practices’ for fisheries ecolabeling certification schemes. As the “Guidelines on Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries” (FAO, 2005) are an accepted minimum standard for credible, robust, fisheries ecolabeling schemes, they formed the basis for the study criteria. The process standards developed by the International Social and Environmental Accreditation and Labeling Alliance (ISEAL) and some elements from WWF’s framework for ecosystem-based management of marine fisheries were added as well.

The criteria for ecological sustainability described in the WWF publication are relevant to achieving sustainable fisheries and ecosystems.

The minimum standards (“Minimum Substantive Requirements”) contained therein were informed by reference to the following conventions, agreements, and documents.

- United Nations Convention on Law of the Sea, 1982 (UNCLOS)
- The Agreement for the Implementation of the Provisions of UNCLOS relating to the conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 (“FSA” or the “UN Fish Stocks Agreement”)
- FAO Code of Conduct for Responsible Fisheries, 1995
- Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem, 2011

### **Canada Ecotrust**

Canada Ecotrust, a Canadian nonprofit whose purpose is to build the conservation economy developed “Thisfish,” a traceability system over the last three years (see section entitled “Potential Partners for Traceability Pilot Study”). They also recently released draft traceability standards (open for public comment through Sept 2012).

In developing their “Traceability Data Standards 1.0”, Canada Ecotrust consulted a number of reports and existing standards to ensure compatibility with general industry practices and norms.

- ISO 12870:2011. *Traceability of finfish products: Specification on the information to be recorded in captured finfish distribution chains*. First edition, Sept 15, 2011.
- GS1. *Global Traceability Standard 1.2.2: Business Process and System Requirements for Full Supply Chain Traceability*, Mar. 2010.
- GS1 and National Fisheries Institute. *U.S. Seafood Traceability Implementation Guide 1.1*, Apr. 27, 2011.
- Can-Trace, Agriculture and Agrifood Canada and GS1 Canada. *Canadian Food Traceability Data Standard Version 2.0*, May 2006.

## **International Trade Center Standards Map**

Standards Map (<http://www.standardstmap.org/>) is the International Trade Center's web-based information portal of the Trade for Sustainable Development (T4SD) program, a partnership-based effort to increase access to information on private standards to enhance global opportunities for sustainable production and trade. A free resource, Standards Map provides users with information enabling them to analyze and compare information on more than 70 voluntary sustainability standards operating in over 200 countries, and certifying products and services in more than 80 economic sectors.

Through an intuitive and user-friendly search process, users can review and compare standards across common themes and criteria. Standards Map also includes additional reference material to increase awareness and knowledge of voluntary standards, including quick-fact sheets for each of the standards referenced to and links to more than 250 academic studies, dissertations and research papers.

## **Ecological Criteria for Standards**

The Costa Rican Fisheries Institute (Incopesca) is currently developing standards for sustainable fishing practices in Costa Rica. However, environmental groups question the validity of Incopesca's role in the process. The Front for Our Seas is a collective of nongovernmental conservation organizations, including the Marine Turtle Restoration Program (Pretoma), organized to "improve marine administration via a series of legal, scientific and political approaches." Front for Our Seas filed a complaint before the Secretary of Environmental Affairs (SAA) for the U.S.-Central America Free Trade Agreement (CAFTA), alleging that Incopesca had not complied with regulations in CAFTA requiring shrimp trawlers to use Turtle Excluder Devices (TEDs) on their nets. Incopesca immediately rejected of the complaint purportedly to save Costa Rica more than \$15,000,000 in fines.

Meanwhile, representatives of different environmental groups have accused Incopesca of abetting shark finning, a destructive practice that is decimating shark populations globally. Groups also accuse Incopesca of setting fisheries policy with little or no scientific studies or annual fisheries data to guide policymaking, of allowing foreign fleets to over-exploit tuna fisheries in Costa Rican waters, and of catering to the semi-industrial and industrial national fleets at the expense of small-scale fishermen in the development of management policy. Finally, environmentalists question the makeup of the Incopesca board of directors. Five board members are representatives of the commercial fishing industry, a fact conservationists have long criticized.

In the final analysis, Costa Rica lacks a local assessment program that is time- and cost-effective and sufficiently independent, transparent, and rigorous in its science to allow sustainable seafood recommendations to be made to regional restaurants and retailers with confidence and credibility. To develop such certification standards for local artisanal fisheries, MarViva should look at the following benchmarks.

## **Australia Conservation Foundation**

As in Costa Rica, local artisanal fisheries in Australia do not have the resources to apply for certification with the Marine Stewardship Council or to adhere to the somewhat strict standards of other global

ecolabels. Therefore, the Australia Conservation Foundation (ACF) and the University of Technology, Sydney (UTS) have developed certification standards for local artisanal fisheries in order to implement a Thisfish traceability system (see section entitled “Potential Partners for Pilot Traceability Study).

At the core of this process are the Sustainable Australian Seafood Assessment Criteria (SASAC), developed with the assistance of a team of leading marine scientists — the Science Reference Panel. The criteria are used to assess seafood, as part of the Sustainable Australian Seafood Assessment Program (SASAP) hosted by UTS.

The assessment criteria and process are independent, transparent, scientifically rigorous and time- and cost-effective. They also provide for collaborative engagement with the seafood industry in a program that is about improvement, not punishment.

Wild-catch products are judged by stock levels, bycatch and the impact of fishing on habitats and the ecosystem. Farmed seafood is assessed for disease and parasite risk, physical site disturbance and cumulative impacts, wildlife interactions, and the sustainability of wild-sourced stock and food sources.

- SASAC Basic Criteria

Balancing finite fish stocks with improvements in catching efficiency must be regulated by:

1. Time-and-area closures: These methods allow fishing during certain times or in certain areas, but not in others
2. Restrictions on size of boats: Certain fisheries have limits on the size of fishing boats
3. Restrictions on type of fishing gear: Virtually every fishery has limitations on fishing gear, such as the size, design, and use of each type of gear
4. Gear prohibition: Certain gear types are completely prohibited, such as pelagic longlines, sunken gillnets, and fish traps
5. Managing responsible disposal and recycling of marine wastes – oil, plastics & cardboard

- SASAC Tuna Criteria

In order for tuna to be considered “Dolphin Safe”, it must meet the following standards:

1. No intentional chasing, netting or encirclement of dolphins during an entire tuna fishing trip
2. No use of drift gill nets to catch tuna
3. No accidental killing or serious injury to any dolphins during net sets
4. No mixing of dolphin-safe and dolphin-deadly tuna in individual boat wells (for accidental kill of dolphins), or in processing or storage facilities
5. Each trip in the Eastern Tropical Pacific Ocean (ETP) by vessels 400 gross tons and above must have an independent observer on board attesting to the compliance with points above.

As other non-target species, such as sea turtles, sharks, and billfish, are also caught in purse seine nets, IMMP's "Dolphin Safe" policies also addresses bycatch to reduce the harm to the oceans' ecosystems.

### **Sustainable Fisheries Partnership: Fisheries Improvement Projects**

Many important fisheries are not yet managed well enough to meet the standards of credible international arbiters of sustainability. This is a challenge for many major seafood buyers and producers: they need the products of these fisheries, but they are committed to sustainability in their sourcing. Sustainable Fisheries Partnership (SFP) works with the seafood industry to meet this challenge by helping less well-managed fisheries meet the environmental requirements of major markets.

Coordinated by SFP, a Fishery Improvement Project (FIP) is a self-declared project operating via a collaborative alliance of buyers, suppliers, and producers that work together to improve a fishery by pressing for better policies and management while voluntarily changing purchasing and fishing practices to reduce problems such as illegal fishing, by-catch, and habitat impacts. These projects are increasingly led by industry, with SFP providing technical support and expertise at differing levels. There are a number of information resources regarding FIPs available on the SFP website. The last link (FIP tool kit) will be an invaluable resource for MarViva in developing standards and working with local artisanal fisheries.

- [FIP Overview](#) – this document provides a more detailed description of how FIPs function
- [SFP FIP status list](#) – this table provides a quick overview of the progress of all FIPs associated with SFP.
- [FIP tool kit](#) – the tool kit is a set of documents that can guide anyone through the process of creating and implementing a FIP.

### **Social Responsibility Standards**

With respect to social certification there has been virtually no involvement of fisheries with social certification schemes (RAP Publication 2007/24, FAO) with a few exceptions in the EU. One exception is the “Fair-Fish Initiative” which claims the following benefits to producers:

- Prices are fixed together with the fisher, and are at least 10 percent above the price offered by local fish merchants, combined with the guarantee that Fair-Fish will buy the quantity ordered if fish conform to label prescriptions.
- A fair trade premium (an additional 10 percent of the fisher’s price) is given to local communities to help them create alternative incomes outside the fishery.
- Life jackets for fishers involved, as well as health insurance for them and their families.
- Exclusion of child labor in the fishery and control of school attendance of the children of participating fishers.
- Assistance in defining sustainable fishery criteria.
- Empowerment by training fishers and fish merchants to cope with the demands of food safety, hygiene and traceability and by integrating them in the decision-making process.

## Potential Partners for MarViva Seafood Traceability Pilot Study

There are two options for a pilot study that would allow MarViva to evaluate traceability scenarios. The first, Trace Register™, is an “off-the-shelf” system that is used by over 400 companies in 24 countries. The second, Thisfish, an initiative of Ecotrust Canada and fishing industry partners, would be developed locally in partnership with Ecotrust Canada.

### Trace Register™

The Trace Register™ system is the leading electronic traceability system for the global seafood industry. Used by over 800 companies in 24 countries around the world, the system is a web-based, on-demand application that can be used by fisheries, producers, buyers, marketers, and regulators alike. It functions as an independent, third-party “registry” into which product-source and traceability information is entered, secured, and shared among companies throughout the supply chain. It overlays the physical supply chain with an “information supply chain” that connects all trading partners.

Here is a link to a video in English that describes how the Trace Register™ system works: <http://www.traceregister.com/en/videtrintro.html> .

The system is available in seven languages, including Spanish, and has Spanish-speaking training and customer service staff based in Central America (their head of customer service is based in Ecuador) and all help documentation is available in Spanish. Trace Register™ is already working with close to 60 seafood companies in Central and South America.

The Trace Register™ system requires no special software, hardware, or technical skills. An internet connection is all that is needed to use it. The system is password-protected and allows participants to control who sees their data and what can be seen. There is no database maintenance required as it runs on a “social network” model. The entire system can be implemented in Spanish/English.

Trace Register™ works with companies at each and every step of the seafood supply chain from the harvester/fisherman to the end retailer including leading importers and buyers. Their retailer customers in the US include Whole Foods, Wegmans, Wal-Mart, Sam’s Club, Price Chopper, Food Lion, Hannafords, Sweet Bay and Harveys. These retailers are primarily using the Trace Register system to help ensure that their seafood products comply with their sustainable seafood programs. (See section entitled “Retailers Data Attributes for Traceability”.)

Trace Register™’s experience in working with fishermen/harvesters includes a major program with the U.S. Gulf States Marine Fisheries Commission (GSMFC). The project for GSMFC is called “Gulf Seafood Trace” ([www.gulfseafoodtrace.org](http://www.gulfseafoodtrace.org)) and has the objective to help drive demand for Gulf of Mexico seafood by implementing electronic traceability for all seafood companies in the five US states that border the Gulf of Mexico – Texas, Louisiana, Mississippi, Alabama and Florida. The aim is to have 200 processors and 1000 dealers using the system and linking back to the state’s trip ticket system. The

project includes using the powerful marketing functionality of the system to help promote products to buyers and consumers

Here is a link to a video in English that describes the Marketing Module which allows harvesters to increase their direct customers <http://www.traceregister.com/en/video-marketingmodule.html>.

Last year Trace Register™ also undertook an electronic traceability pilot working with Centro De Investigación en Alimentación y Desarrollo A.C. (CIAD) for the Pacific seafood industry in Mexico.

Trace Register™ is also one of only three electronic traceability systems that was able to successfully complete two complex food recall scenarios in a project run by the Institute of Food Technologists for the U.S. Food and Drug Administration. The recall scenarios were sent to 12 different traceability solution companies and only Trace Register and 2 others (including Thisfish; see next section) were able to successfully complete the recall reporting. This is a testament to the functionality and robustness of the Trace Register™ system.

Trace Register™ has provided a proposal and budget for a pilot study (see Appendix A)

## **Thisfish**

Thisfish began in 2008 when a group of fishermen from Vancouver Island approached Ecotrust Canada about developing a seafood traceability initiative. The challenge was to create a system that would meet new government regulations while helping fishermen and seafood businesses market their catch to consumers. The solution was found in new social media and Internet technologies that empower consumers to trace the origins of their seafood and to connect directly to fishermen.

These factors set the stage for strong demand and rapid growth for Thisfish in 2011. In British Columbia, Thisfish expanded from 22 fishing vessels in the previous year to 122, which together landed almost 2.5 million pounds of traceable seafood. In the same year, about 23 percent of the total catch of Fraser River sockeye was uploaded to Thisfish along with 18 percent of Pacific halibut and 17 percent of troll-caught salmon on the Vancouver Pacific west coast.

Thanks to a major technological upgrade in 2011, Thisfish hopes to bring about positive changes to the business of locally caught seafood. With traceability, consumers and chefs can make more informed choices about the origins, quality, and sustainability of the seafood they buy. More trust and loyalty is created throughout the supply chain. And fishermen and processors can gain new business intelligence and can market their seafood in more sophisticated ways.

At the heart of Thisfish's upgrade are innovative social media and Internet technologies. A new website provides consumers with a sleeker and richer online experience when they trace their seafood. The new design features photos, illustrations, interactive maps and expandable content boxes that allow consumers to easily find the information that's of most interest to them, whether it's a product's eco-rating, catch method, fisherman, nutritional data, or even tasting notes.

Consumers can also send a message directly to their fisherman through the website. The upgrade also created an online dashboard for each fisherman and seafood business that uses Thisfish to trace their products. Each time a product code is traced, Thisfish collects data about the time and location of the individual tracing the fish. The data is displayed on a private dashboard for each fisherman and business allowing them to see where his catch is being traced.

Mobility is another hot trend as more and more people surf the Internet using iPhones, Androids and Blackberries. Thisfish responded by launching a phone-friendly website that allows consumers to trace their seafood while on the go.

Here is a link to the website: <http://thisfish.info/about/philosophy/>. The system can be viewed in English and French at this time. Should MarViva opt to partner with Thisfish, it would be translated into Spanish.

All fish harvesters have individual codes (that appear on the packaged fish and can also be updated daily on restaurant menus). Click on “Trace Your Fish” and enter the following code(s) to see what a consumer or supply-chain customer would see on the dashboard: “C010224” and/or “C006085”. Information available includes:

- What is this fish?
- Who caught it?
- How, where, and when was it caught?
- Who processed it?

The consumer can see a map that shows the location, and click on a link that describes the manner in which the fish was caught. Fishers can link to their own websites if they desire to market directly to potential customers. Alternatively, they can merely enter the data for traceability in a simple, template form that requires only minutes per day.

Thisfish has published separate training manuals for Fish Harvesters and Fish Processors. MarViva has copies for review.

Thisfish also recently released a draft of “Traceability Data Standards 1.0” open for comment until Sept 14, 2012. MarViva has copies for review. Development of a “Chain of Custody Standard” is in process.

MarViva has signed a confidentiality agreement with Canada EcoTrust, which has provided a budget and timeframe for development and implementation of a traceability pilot study in Costa Rica (see Table III). The aim is to begin with a small number of local fishers (perhaps those from the Federation of Artisanal Fisheries; see page 3), a key processor/exporter (see page 8), and one or more importers/end users in the U.S. (see page 9).

<b>Thisfish Core Pilot Activities and Time Estimate (small-scale start-up w/collaborating organization) - Ecotrust Canada and Marviva Foundation</b>				
Activity	Description	Days - Local Organization	Days - Ecotrust Canada	Expenses - Ecotrust
<b>Planning</b>	Project planning, meetings/calls, workplan, development	5	5	
<b>Content Creation</b>				
Fisheries Page (per fishery)	Research & Writing	5	3	
	Fishing Method illustration	0		CAD 350
	Fishing Method Photo	0		CAD 100
Species Page (Per species)	Research & Writing	5	4	
	Species Illustration (Scientific)	0		CAD 200
	Species Illustration (Drawing)	0		CAD 200
	Species Range Map	0	1	
Eco-ratings	Research and set up new eco-rating pages	5	3	
GIS Mapping	Create new fishing areas for ports in GIS and integrate online	1	4	
Landing Ports	Set up landing ports in system	0	1	
<b>Chain of Custody</b>				
Assessment	Assess and document the chain of custody and various supply chains for the fishery to assess risk, including how fishery is monitored and enforced	3-8	2	
Assessment of businesses	Do a C-o-C assessment of any processing facilities or auction houses that will be taking part in the chain of Custody	3-8	2	
Travel for Assessment		?		TBD
<b>Training</b>				
Training plan		2	1	
Harvester Training	Conduct meetings/workshops to train fish harvesters about how the system works and how they could benefit from it	3-9	3-9	
Harvester Profiles	Assistance to help fishermen set up profiles on system including portrait, photo of vessel and basic biography; photo gallery is optional	5	1	
Coordinator Training	Training of local coordinator or marviva coordinator who could help troubleshoot and provide ongoing support	2	1	
Travel	At least one trip for Thisfish staff to do site visit and do training	?	?	TBD
Online Training Video	Create online training video to demonstrate how system works; or translate current online tutorial material	?	?	?
<b>Marketing and Communications</b>				
General Brochure	Customize general brochure that explains Thisfish	1	2	
	Printing costs			
	Create a guide that explains Thisfish to restaurants and how they can communicate information to consumer	2	2	
Restaurant Guide	Media events related to launch of pilot project	3	0,5	
Media Relations				
<b>Operational Costs</b>				
Tags/labels	Cost for tag manufacturing ranges from 6 - 10 cents USD; labels are 2-4 cents. We'll need to estimate how many tags and/or labels are needed for year			TBD
Communications	Phone, internet, etc	?	?	
Project Management and Coordination	Ongoing Project management and coordination including harvester, processor, and market support.	10-60	3-20	
<b>Translation Cost</b>				
Website Navigation	Cost of translating all the buttons, menus and other elements of the system	5	1	
	Cost of technically integrating the translation into the navigation and infrastructure of the website. This includes creation of buttons and images in Spanish and programming the website.	1,5	9	
Website Integration	Same as above except it would need to be done for the mobile version of the website	0,5	3	
Website Content	Translation of all website content relevant for Costa Rica	6	0,5	
Chain of Custody Standard		1	0,5	
Traceability Standard		1	0,5	
Terms of Use & Privacy Policy		2	0,5	
Fish Harvester Traceability Manual		1	0,5	
General Brochure		2	0,5	
Restaurant Guide		3	0,5	
<b>Website Regionalization</b>				
Website programming	Creation of a "regional" filter on the website so that when users come to the site it will default to region-specific fisheries	1	7	
	<b>Total</b>	<b>2-6 months</b>	<b>2-3 months</b>	<b>CAD 850</b>
	<b>Total Marviva and Ecotrust</b>	<b>4-9 months</b>		
	<b>Fees/day (Canadian)</b>	<b>?</b>	<b>CAD550</b>	
	<b>Total budget</b>			

**Table III. Timeframe and Budget for Development and Implementation of Traceability Pilot Study**



## Summary: Recommendations for Work Plan for Sustainable Seafood Traceability Pilot

The following outlines action steps for a work plan for MarViva for implementation of a sustainable seafood traceability pilot study in Costa Rica

### Developing Standards for Sustainable Fisheries in Costa Rica

Costa Rica lacks a local fisheries assessment program that is time- and cost-effective and sufficiently independent, transparent and rigorous in its science to allow sustainable seafood recommendations to be made to regional restaurants and retailers with confidence and credibility. To develop such certification standards for local artisanal fisheries, MarViva should incorporate the benchmarks shown in Figure 2.

**Figure 2. Benchmarks for Standards Development (Note: reference to proposal page in parentheses)**



### Potential Participants in MarViva's Seafood Traceability Pilot

The goal of this project is to test the implementation of a seafood traceability system in Costa Rica (and perhaps Panama and Colombia) with practical experience, with real-life situations and challenges, and

with a small number of participants at each step of the value chain (i.e., a small number of fisherman, a few processors, one or two distributors, and a large supermarket and/or restaurant chain).

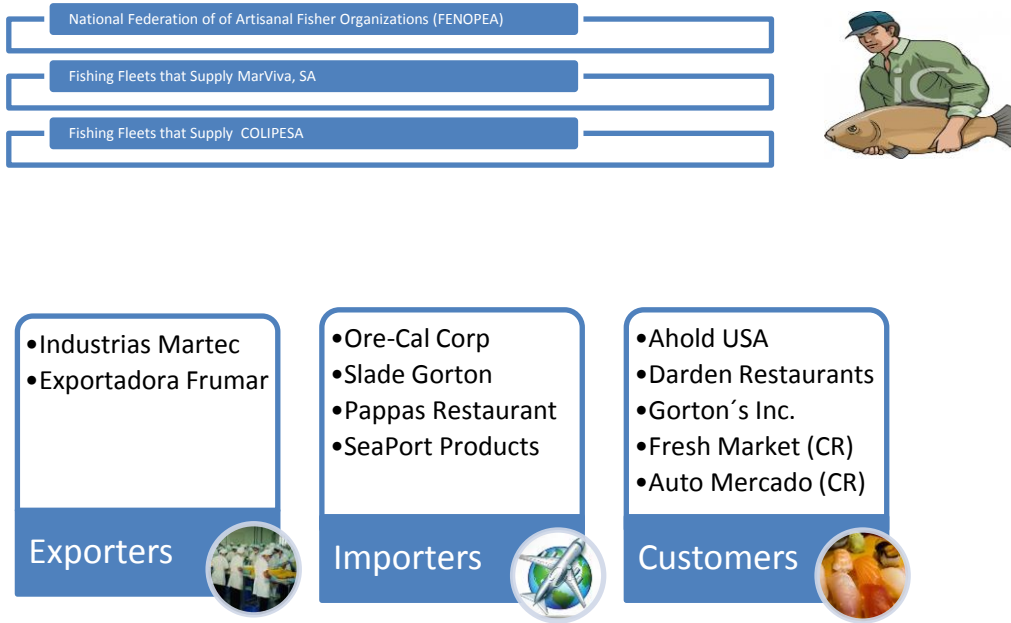
Figure 3 illustrates the recommended potential partners for undertaking such a venture. As indicated in the section entitled “Supply Chain Infrastructure: Harvesters”, FENOPEA is the most likely candidate for a small pilot. FENOPEA consists of six, small-scale artisanal fisher associations from the towns of Puerto Jimenez, La Palma, Pavones, Pilón, Cocal Amarillo and Zancudo, which are located around the Golfo Dulce Marine Responsible Fishing Area (MRFA). It brings together 190 boat captains and laborers engaged in artisanal fishing, generally in three-man crews. It represents more than 80% of licensed fishers in this gulf.

FENOPEA’s main goal is to help implement sustainable fishing in MRFA, the largest protected area in Central America. MRFA has 750 km<sup>2</sup> where fishing is regulated via closed seasons, zoned areas, fishing gear, species and minimum sizes. In addition to improving quality of life for artisanal fishers, this federation wants to consolidate itself nationally, supporting the management of a model area where life is better for the fishers and resources are used well, using best production and marketing practices, supporting control and surveillance actions, and supporting fisheries monitoring.

Another approach could be to engage some or all of the fishing vessels that are suppliers to Martec, SA. This, of course, is contingent upon obtaining Martec’s commitment to participating in the study.

There is a third major exporter/processor, COLIPESA, which is located in Limon. COLIPESA is a seafood export company. They take orders from their customers, buy the fish from large fishing fleets, transport the fish to the processor, and then ship the fish to customers. They are a very large exporter of tuna, mahi mahi, and other important species. For example, they ship 32+ containers of frozen tuna monthly. Each container holds 19,000 kilos net fish weight (i.e., not including the weight of the container or the gel packs that keep the fish frozen).

**Figure 3. Supply Chain Partners for Traceability Pilot in Costa Rica and the U.S**



**Seafood Traceability Systems for Pilot Seafood Traceability Project**

A seafood tracing system that incorporates a combination of online inventory reporting and physical product tagging, augmented by independent supply chain verification, will give companies and consumers the information they need to make sustainable seafood choices. Figure 4 illustrates the two most promising candidates for partnering with MarViva to implement a pilot test study.

**Figure 4. Recommended Partners for Implementing Seafood Traceability Pilot Study**



**Sustainable Traceability System Implementation and Timeline Action Steps**

The following section outlines recommendations and action steps for the implementation of a sustainable seafood traceability system between Costa Rica and the U.S. The scheme contains three proposed phases: the pilot study, a system roll out, and system enhancements.

### **Phase I. Development and Implementation of Pilot Study (three to six months)**

The traceability pilot will cover traceability from fishing vessel to exporter and on to the importing buyer. It will include:

- 10-20 Fishers – their information will be entered in the Trace Register™ system by the processor or buyer.
- 6 Buyers
- 1 Primary Exporter (Processor)
- 1 or more Importers (Buyers)

The pilot will run for 6 months to enable a good sample of shipments to be included in the evaluation. The aim is to run a sufficient number of shipments to provide a good test of the system so participants can understand how the system works, determine the benefits it can deliver, and have enough information to determine the success of the pilot and potential next steps. Typically between 5 and 10 shipments are sufficient to provide sufficient information to meet the objectives for this type of pilot.

Obtaining executive commitment from pilot participants is critical to the success of the pilot. MarViva will confirm the participants in the pilot and will contact them to gain their support for the pilot and to brief them on its objectives and approach. (Note: Trace Register™ would support MarViva in this activity. They have standard letters and presentations to support the supplier communication. They would also be happy to contact potential importer participants in the USA).

The following sections outline recommended action steps for implementing the pilot study.

#### **Establish Partnerships with Harvesters and Processor/Exporters**

##### **FENOPEA**

Contact FENOPEA and set up face-to-face interviews to ascertain their interest in the project. This federation of fishers is the most suitable partner should MarViva decide to implement a traceability system that requires sustainable, responsible fishing as an essential component. However, it would be easier and faster for the pilot to set up the traceability scheme without requiring sustainability. In that case, the following (larger) fishing fleets should be engaged at the outset, depending on which exporter agrees to participate in the pilot

#### Martec, SA Fishing Fleet Partners

- Contact Martec, SA and set up face-to-face interviews to ascertain their interest in the project. If MarViva decides that the pilot will include only the traceability component (i.e., sustainability is not a requirement at this point), the ideal partnership with fishers would be the fleet that supplies fish to Martec, SA. That is because Martec is currently the largest exporter of fish from Costa Rican waters to the U.S. (see section entitled “Potential Costa Rican Participants in MarViva’s Seafood Traceability Pilot.” As such, Martec is the recommended partner for processor and exporter. In short, it is recommended that the pilot study include fishers from whichever exporter agrees to participate in the study.

#### Exportador Frumar, SA

- Contact Exportadora Frumar, SA and set up face-to-face interviews to ascertain their interest in the project. Establish connections with their fishing fleet should they agree to participate.

#### COLIPESA

- Contact COLIPESA, SA and set up face-to-face interviews to ascertain their interest in the project. For the purposes of this proposal, I was not able to find exporting data from COLIPESA. Therefore, their shipments are not included in Tables I and II. For some reason, U.S. Customs and U.S. Census data do not include their records. Nonetheless, they are apparently a very large supplier of tuna loins and steaks to the U.S. (see section entitled “Potential Participants in MarViva’s Seafood Traceability Pilot”). They evidently work with a large fishing fleet as well as a number of processors and logistics companies. Therefore, it is important to reach out to them in the same manner as Martec,SA, particularly should Martec not be interested in participating.

#### **Establish Partnerships with Retail Chains that are Customers of Exporters**

In Phase I, it is most efficient to establish a partnership with a current customer of the exporter participant (see section entitled “Potential U.S. Participants in MarViva’s Seafood Traceability Pilot”).

- Should Martec agree to participate, candidates are: Ore-Cal Corporation, Slade Gorton, Inc., and Pappas Restaurant.
- Should the exporter be Exportadora Frumar, their principal customer is Sea Delight, LLC, which is based in Alajuela and thus convenient as a potential end user partner.
- COLIPESA’s U.S. customers have not been identified. Presumably, this information could be gleaned from the face-to-face interview. Therefore, COLIPESA would have to identify which of its U.S. customers is the most suitable end-use importer.
- If these candidates do not agree to participate, go through the list in Table II and choose others based on total shipments.
- If the decision is made to implement a local rollout, contact Fresh Market and/or Auto Mercado as potential end-use customers.

## **Choose Either Trace Register™ or Thisfish for Electronic Traceability System**

This action step should be undertaken simultaneously with the previous two (i.e, establishing partnerships with supply chain participants). That is because either system would require having successfully identified supply chain partners. The qualities and arguments for suitability for both groups are outlined in the section entitled “Potential Partners for MarViva Seafood Traceability Pilot Study”. The recommendation is that Trace Register™ should be chosen as they would likely provide the best service for MarViva. They are a well-established company and have a proven track record in working with many of the U.S. companies that would likely be participants in Phase II. The timeframe for completion of the pilot is three to six months.

Contact information:

Trace Register™ contact is Andy Furner (cell: 206 909 2979; office: 206 621 1601 ext. 115; [afurner@traceregister.com](mailto:afurner@traceregister.com); [www.traceregister.com](http://www.traceregister.com)).

Thisfish contact is Tasha Sutcliffe; Program Director, Fisheries and Marine; Ecotrust Canada; Phone 604-682-4141 ext 233; Fax: 604-682-1944; [Tasha@ecotrust.ca](mailto:Tasha@ecotrust.ca); [www.thisfish.info](http://www.thisfish.info).

All previous communications with both are in separate folders in my MarViva inbox.

## **Conduct On-Site Training with Supply Chain Participants**

See detailed proposals from Thisfish and Trace Register for implementation steps.

## **Phase II. Development and Implementation of Sustainable Traceability Roll Out (six months to one year)**

### **Develop Sustainability Standards for Local Fishers**

An initial gap analysis of harvesters should be conducted that aims to characterize the fishery and its history, including data on historical and current fishing practices and captures, socioeconomic and ecological parameters, and existing governance. The study would include surveys, semi-structured interviews with artisanal fishers, participative workshops and development of standards for local monitoring of fishing methods.

Refer to section entitled “Developing Standards for Sustainable Fisheries in Costa Rica”. For reference, obtain copies of:

- Thisfish’s “Seafood Traceability Standards 1.0 (2012)
- Naturland’s Standards for Sustainable Capture Fisheries (2006)
- Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem, 2011
- GS1 Global Traceability Standard
- UK Seafish Industry Authority Responsible Fishing Scheme

- Australian Conservation Foundation Sustainable Australian Seafood Assessment Criteria (SASAC)
- Review standards and methods used by FENOPEA  
After standards are developed, become a Fisheries Improvement Project via Sustainable Fisheries Partnership.

### **Expand Pilot Study Project and Implement Sustainable Seafood Traceability System**

At the end of the pilot a Final Review meeting will be held to review the pilot against the pilot objectives and key success criteria. The final review will include the key participants in the pilot (customers and suppliers). If the pilot is deemed to be a success a proposal and plan will be developed to implement fully the (Trace Register or Thisfish) system into agreed seafood supply chains.

### **Phase III. System Enhancements and Marketing Outreach for Harvesters (12 to 18 months)**

Both Thisfish and Trace Register have developed creative, electronic enhancements to their systems that allow harvesters to link information specific to their business to end users via their webpages or mobile hand-held devices.

It is important to provide these marketing resources to fishers who desire to market directly to their customers. In addition, direct outreach allows harvesters to obtain a much higher price for their catches.

The timeframe provided by both groups for implementing enhancements is approximately six months to a year after completion of the pilot.

An additional goal for Phase III would be to pursue certification by the major ecolabels (see section entitled "Seafood Sustainability Standards and Certification Programs").

This would also increase business for members of the supply chain, particularly where the end use customer is a high-end restaurant chain.

The electronic system partner that is chosen for the pilot would work with MarViva to outline the steps (and costs) for Phase III.

## References

Gibbon, Jamie; Hastings, Connor; Hirsch, Tucker; Hislop, Kristen; and Stevens, Eric. (2010) From Sea to Table: Recommendations for Tracing Seafood. Bren School of Environmental Science & Management. University of California, Santa Barbara.

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National Fisheries Institute. Traceability for Seafood: U.S. Implementation Guide. March 2011

Food Marketing Institute. A Retailer's Guide to Sustainable Seafood. March 2012.

ISO 12870:2011. *Traceability of finfish products: Specification on the information to be recorded in captured finfish distribution chains*. First edition, Sept, 15, 2011.

GS1. *Global Traceability Standard 1.2.2: Business Process and System Requirements for Full Supply Chain Traceability*, Mar. 2010.

GS1 and National Fisheries Institute. *U.S. Seafood Traceability Implementation Guide 1.1*, Apr. 27, 2011.

Can-Trace, Agriculture and Agrifood Canada and GS1 Canada. *Canadian Food Traceability Data Standard Version 2.0*, May 2006.

United Nations Convention on Law of the Sea, 1982 (UNCLOS)

The Agreement for the Implementation of the Provisions of UNCLOS relating to the conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 ("FSA" or the "UN Fish Stocks Agreement").

FAO Code of Conduct for Responsible Fisheries, 1995

Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem, 2011

FAO Guidelines on Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries (2005)





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## Seafood Traceability Pilot

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Proposed Approach  
for  
the MarViva Foundation



25<sup>th</sup> July, 2012

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# Seafood Traceability Pilot

## Introduction

Trace Register LLC (Trace Register) is proposing to undertake a pilot to explore the feasibility and potential benefits of using the Trace Register system™ for electronic chain traceability for wild-caught seafood species. The Trace Register system™ is a simple to use, web based system designed to complement a company's own traceability system and deliver full traceability throughout the entire supply chain.

This document outlines the scope and approach for the pilot.

## Objectives

The pilot has 4 primary objectives

- Determine the potential opportunity and benefits of using electronic, end-to-end supply chain information for fishers, processors and exporters.
- Determine the ease of use and operation of the Trace Register system™.
- Understand how the Trace Register system™ can be incorporated in the existing operations of each company in the supply chain.
- Determine if the Trace Register system™ could be a good solution as a general traceability system for the Costa Rican seafood supply chain.

## Scope

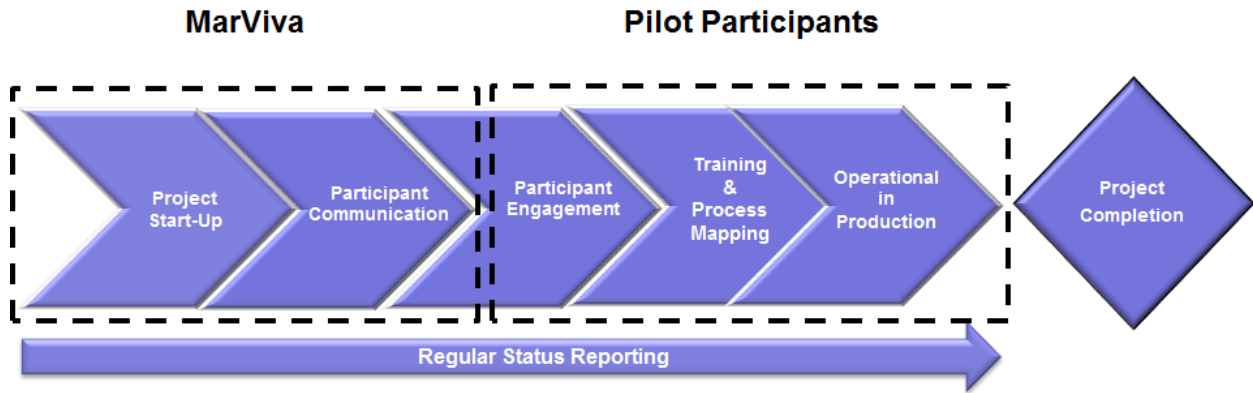
The traceability pilot will cover traceability from fishing vessel to exporter and on to the importing buyer. It will include:

- 10-20 Fishers – their information will be entered in the Trace Register system™ by the processor or buyer.
- 6 Buyers
- 1 Primary Exporter (Processor)
- 1 or more Importers (Buyers)

The pilot will run for 6 months to enable a good sample of shipments to be included in the evaluation. The aim is to run a sufficient number of shipments to provide a good test of the Trace Register system™ so participants can understand how the system works, determine the benefits it can deliver, and have enough information to determine the success of the pilot and potential next steps. Typically between 5 and 10 shipments are sufficient to provide sufficient information to meet the objectives for this type of pilot.

## Approach

The pilot will consist of the following activities:



Each activity is defined in more detail below:

### **Project Start-Up**

MarViva and Trace Register will review and confirm the objectives and scope for the pilot and key success criteria will also be agreed.

The objectives and key success criteria will be used in regular review meetings to assess the progress and effectiveness of the pilot. They will also be used in the Final Review meeting to determine the success of the pilot and agree next steps.

The schedule and participants for the regular status reporting and review meetings will be also agreed. The status meetings will be critical to ensure the pilot stays on track, any issues are addressed in a timely manner, and results are captured as the pilot progresses.

**Estimated Effort: 3 hours (1 hour meeting and 2 hours preparation)**

### **Pilot Participant Communication**

MarViva will confirm the participants in the pilot and will contact them to gain their support for the pilot and to brief them on its objectives and approach.

Obtaining executive commitment from pilot participants is critical to the success of the pilot.

Trace Register will support MarViva in this activity. We have standard letters and presentations to support the supplier communication. We will also be happy to contact potential importer participants in the USA.

**Estimated Effort: 30 minutes per pilot participant (Sending introductory email and phone briefing)**

Once the executive level support of pilot participants has been received Trace Register will work with each participating company to undertake the following activities:

### **Participant Engagement**

MarViva and Trace Register will hold a kick-off meeting with each participating company to brief senior management and the staff designated to use the Trace Register system™ during the pilot. We have found that a webinar attended by all participants is a very effective way of ensuring that each

participating company has a clear understanding of the objectives of the pilot, the approach and timeline and their responsibilities and commitments.

**Estimated Effort: 1.5 hours per attendee (1 hour meeting and 30 minutes follow-up discussion)**

### **Training and Process Mapping**

Trace Register will work with each participating company to train the staff who will be using the Trace Register system™ and to map how products are identified and tracked in their production process. The process map will be used to determine the key information to be captured in the Trace Register system™ to ensure end to end traceability.

Trace Register will work with each participating company to configure the system to meet their process and information requirements.

This activity tends to be an iterative process with follow up working sessions undertaken as the Trace Register pilot users become familiar with operating the system.

Once they are trained, the pilot users will practice entering “real-life” information into the Trace Register training system. The aim is ensure that the users are proficient in the use of the system and understand the information that needs to be entered.

Trace Register will provide full support to ensure the users quickly become familiar with the use of the system.

**Estimated Effort: 4 hours per user (1 hour training meeting, 1 hour process meeting and 2 hours practice)**

### **Operational In Production**

When the participating companies are deemed to be proficient in the use of the training system they will be moved to the Production system and will start to send actual production data through to their customers. They will do this until the agreed number of shipments (as defined in the Objectives and Scope meeting) have been reached.

**Estimated Effort: 30 minutes per shipment**

### **Regular Status Reporting and Pilot Review**

Regular Review meetings will be held between MarViva, agreed participating companies and Trace Register. The meetings will serve 2 purposes. Firstly, to review progress to ensure the pilot timeline is maintained and to ensure any issues are addressed and resolved before they can impact the pilot.

Secondly, they will be used to review the pilot against the defined objectives and key success criteria so that the success and effectiveness of the pilot can be continually assessed, determined and documented. The output from these regular meetings will be used in the Final Review meeting held at the end of the pilot.

It could be useful to have input from key pilot participants in the review meeting. The actual attendees will be agreed by MarViva and Trace Register at the Objectives and Scope meeting.

The suggested meeting schedule is:

- A short weekly meeting between MarViva and Trace Register to review progress. A weekly status report will be produced as input to this meeting.
- A longer meeting every 4 weeks including agreed key suppliers to review the project against objectives and critical success criteria. A summarized progress report will be produced as input to this meeting.

Regular status review meetings are very important to ensure the pilot remains on track and the pilot timeline is achieved. The meetings will also allow the capture of good ideas and suggestions for additional ways in which the Trace Register system™ can be used to deliver business benefit. These ideas can then be incorporated into the pilot.

**Estimated Effort:**

- **Weekly Status meetings: 30 minutes per attendee**
- **Pilot Review meetings: 1 hour per attendee**

**Final Review and Next Steps**

At the end of the pilot a Final Review meeting will be held to review the pilot against the pilot objectives and key success criteria. The final review will include the key participants in the pilot (customers and suppliers). If the pilot is deemed to be a success a proposal and plan will be developed to implement fully the Trace Register system™ into agreed seafood supply chains.

**Estimated Effort: 4 hours per attendee (2 hours Final Review meeting; 2 hours Implementation Plan review)**

**Budget**

- **Budget - \$12,000**
- Trace Register Account
  - Primary Exporter - \$1,500
  - 6 Buyers - \$3,000 (\$500 each)
  - Primary Importer – No charge
- Training, Support, Pilot Management
- \$7,500 (\$1,250 per month)
- Travel for onsite training by Peter Larkins (head of customer service; fluent in Spanish; based in Ecuador) optional and additional (see below)

This \$12,000 budget covers the following:

- Trace Register accounts for the Primary Exporter (Processor), 6 Buyers (those buying fish from the Fishers and sending to the Primary Exporter), one Primary Importer.
- Trace Register set-up, training, customer support and project management

It excludes any travel to Costa Rica.

We can certainly undertake the pilot successfully by phone and web meeting but, if your budget can support it, it might make sense to budget for a couple of visits to Costa Rica by Peter Larkins, our Head of Customer Service team, who is fluent in Spanish and based in Ecuador. He could work in person with the MarViva team and the local participating companies.

(Per visit by Peter Larkins) Hotel – US\$ 100 per night · Food - US\$50 per day· Flight to Costa Rica \$750· Internal flight (if required) - \$200

- **Timeline – 6 months**

We typically work to complete pilots within a 3 month timeframe as this helps maintain focus and momentum. However, it is our understanding that the Primary Exporter you have in mind for this project typically ships one container per month to its key customer(s). As a result, it is our recommendation that we extend the timeframe to enable the pilot to include a good sample of shipment information.

We can be flexible regarding the pilot timeframe and will be happy to discuss this with you further.

We undertake pilot project management, account set-up, training and support. The role of MarViva will be engage the participating suppliers and act as the Trace Register client for the pilot. We will schedule regular review meetings with the MarViva point person(s) to review pilot progress, address any project issues and receive strategic direction/clarification. These meetings are typically once every one to two weeks and last about 1 hour.

The project budget and timeframe assumes that the suppliers will be entering the data into the Trace Register system manually via our web based data entry screen. We have existing customers using the manual data entry for tens of shipments per day so using the manual approach should be very feasible given the number of shipments being made by the pilot participants.