SEAFOOD

Seafood Traceability Proof of Concept Project Overview

GS1 US SEAFOOD TRACEABILITY READINESS PROGRAM

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GS1 US

THE GLOBAL LANGUAGE
OF BUSINESS

Contents

ⓘ Since its original publication in June 2014, this document now includes revisions for Figure A on page 5 and Figure B on page 12.

About GS1

GS1® is a neutral, not-for-profit, global organization that develops and maintains the most widely used supply chain standards system in the world. GS1 Standards improve the efficiency, safety, and visibility of supply chains across multiple sectors. With local Member Organizations in over 110 countries, GS1 engages with communities of trading partners, industry organizations, governments, and technology providers to understand and respond to their business needs through the adoption and implementation of global standards. GS1 is driven by over a million user companies, which execute more than six billion transactions daily in 150 countries using GS1 Standards.

About GS1 US

GS1 US, a member of GS1 global, is a not-for-profit information standards organization that facilitates industry collaboration to improve supply chain visibility and efficiency through the use of GS1 Standards, the most widely used supply chain standards system in the world. Nearly 300,000 businesses in 25 industries rely on GS1 US for trading-partner collaboration that optimizes their supply chains, drives cost performance and revenue growth while also enabling regulatory compliance. They achieve these benefits through solutions based on GS1 global unique numbering and identification systems, barcodes, Electronic Product Code-based RFID, data synchronization, and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code® (UNSPSC®).

About NFI

The National Fisheries Institute is a non-profit organization dedicated to education about seafood safety, sustainability, and nutrition. NFI and its members are committed to sustainable management of our oceans and stewardship of our environment by endorsing the United Nations' Principles for Responsible Fisheries. From responsible aquaculture to a marketplace supporting free trade, to ensuring the media and consumers have the facts about the health benefits of fish and shellfish, NFI and its members support and promote sound public policy based on ground truth science.

1 Acronyms

CTE	Critical Tracking Events
FSMA	Food Safety Modernization Act
GDSN®	Global Data Synchronization Network™
GLN	Global Location Number
GTIN®	Global Trade Item Number®
IFT	Institute of Food Technologists
KDE	Key Data Elements
NFI	National Fisheries Institute

2 Background

The ability to rapidly and accurately track and trace product throughout the entire supply chain has become of paramount importance. Consumers have become increasingly aware of and interested in issues related to food safety and sustainability. The U.S. Food and Drug Administration (FDA) has been working to implement the Food Safety Modernization Act (FSMA) provisions calling for improvement in the tracking and tracing of food. In addition, the Institute of Food Technologists (IFT) released the *Pilot Projects for Improving Product Tracing along the Food Supply System - Final Report* ("IFT Report"), presenting findings and recommendations from food product tracing pilots conducted for the FDA. The release of the IFT Report only increased ongoing discussions across industry about the FSMA, and heightened anticipation of food traceability rules by the FDA.

Much like other fresh food categories, the seafood industry remains committed to enhancing traceability processes in order to advance food safety, strengthen sustainability efforts, and improve business process efficiencies. Developing a successful traceability program is a process. Companies implement various components, test and collaborate, and enhance and update processes. With increased consumer awareness and government activity, seafood industry stakeholders volunteered to collaborate on a Proof of Concept project under the guidance of GS1 US and the National Fisheries Institute (NFI). The Proof of Concept enabled participants to evaluate their own traceability programs in the context of the *U.S. Seafood Traceability Implementation Guide* and the IFT Report findings and recommendations. By doing so, participants gained a roadmap to guide the development of their traceability programs going forward.

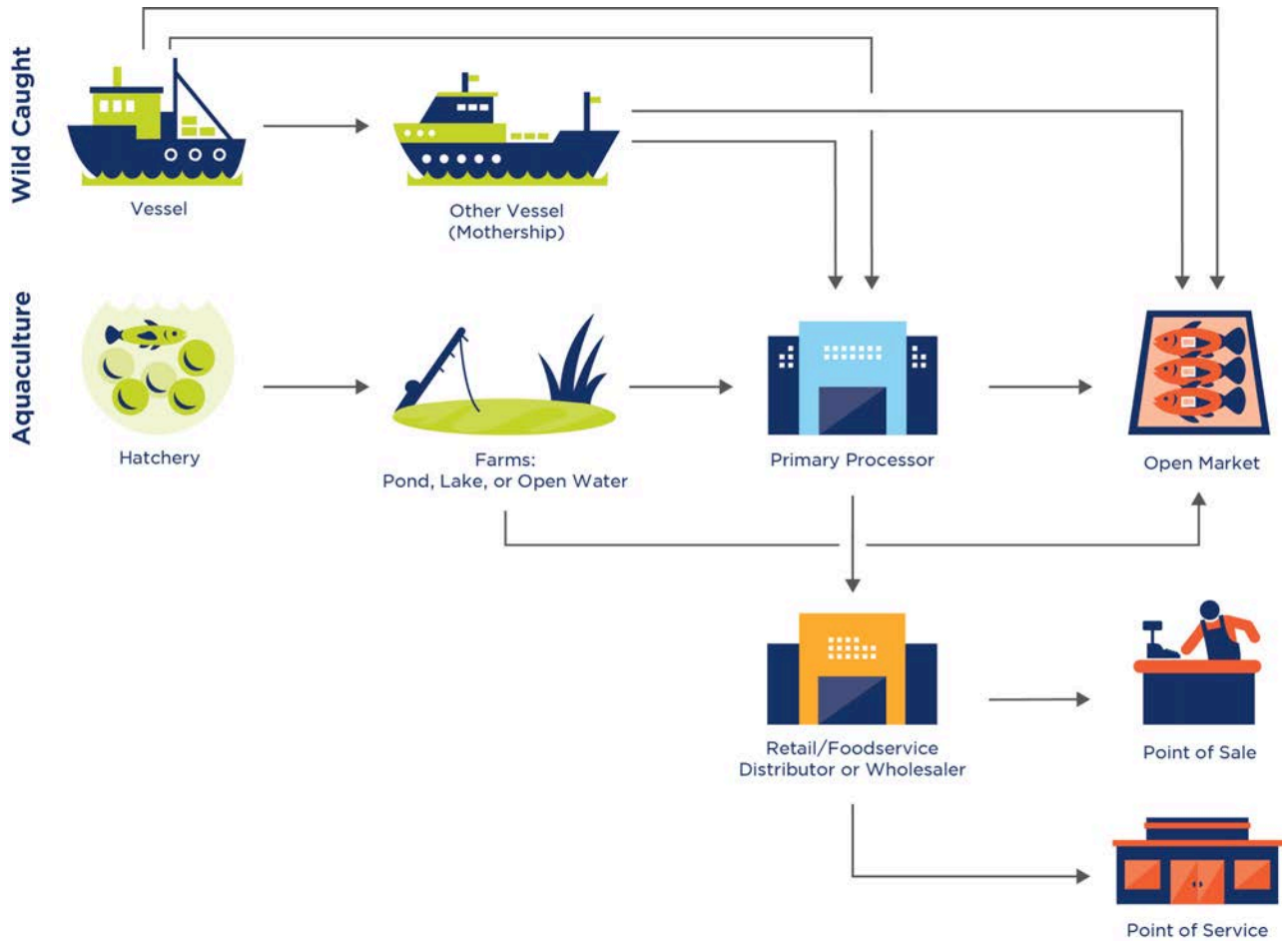

Figure A: Seafood Supply Chain

GS1 US Seafood Traceability Readiness Program

The GS1 US Seafood Traceability Readiness Program offers the education, training, tools, and community support needed to help companies in the seafood industry implement and improve product traceability processes using GS1 Standards.

Who should participate?
Any/all members of the U.S. seafood supply chain, including:

- Packers
- Food Processors
- Suppliers
- Retail Distribution Centers
- Foodservice Distribution Centers
- Import/Export Warehouses
- Grocery Stores
- Supermarket Grocery Chains
- Open Markets
- Restaurants
- Entertainment Venues
- Institutions

Which business groups are encouraged to participate?
Business as well as technical expertise are key to success. Involve stakeholders from across the organization, including:

- Logistics
- Packaging
- Supply Chain
- Food Safety
- Quality Assurance
- Regulatory Compliance
- Traceability
- Operations
- IT

The Seafood Traceability Readiness Program provides a unique opportunity to help prepare your organization to implement traceability processes.

For more information, contact Michele Southall, Implementation Services Director, GS1 US (msouthall@gs1us.org).

3 The Seafood Traceability Proof of Concept

Companies in the seafood industry are heavily focused on improving traceability processes. The benefits of these enhancements allow for product sustainability and integrity, along with the rapid identification, location, and withdrawal of potentially harmful products from stores and restaurants. The GS1 US Seafood Traceability Readiness Program was launched in early 2013 with a focus on helping seafood organizations implement traceability best practices. The program offers the education, training, tools, and community support necessary to help companies in the seafood industry implement and improve product traceability processes using GS1 Standards.

As part of that effort, GS1 US partnered with the National Fisheries Institute (NFI) to sponsor a Proof of Concept based on these practices. (Learnings and management of the Proof of Concept was a benefit of participating in the GS1 US Seafood Traceability Readiness Program.) Seafood industry stakeholders volunteered to collaborate on the Proof of Concept to evaluate their own traceability programs in the context of the *U.S. Seafood Traceability Implementation Guide* and the IFT Report.

4 Goal

In addition to increased consumer awareness and government activity, there are also industry expectations that organizations within the seafood supply chain need to understand traceability concepts, and demonstrate how they manage traceability data in response to a regulatory or food safety inquiry. These expectations reflect how seafood industry companies perceive their own capabilities, as well as the capabilities of their trading partners. The goal of the Proof of Concept was to assess the current state of traceability data today, and to perform a gap analysis between the current state and the desired state in order to forge a path forward.

5 Objectives

In order to better understand how industry is meeting those expectations, there were two objectives:

- Validate the capture of Critical Tracking Events (CTEs) and Key Data Elements (KDEs) at each point in the supply chain to meet the minimum track and trace requirements outlined in the *U.S. Seafood Traceability Implementation Guide* to enable data sharing throughout the distribution channel
- Identify and capture additional data elements requested by trading partners to support sustainability needs

6 Participants

Five seafood industry stakeholders volunteered to collaborate on the Proof of Concept project under the guidance of GS1 US and the National Fisheries Institute (NFI).

PROOF OF CONCEPT PARTICIPANTS & PRODUCTS	
TRIDENT SEAFOODS	Frozen Salmon Burgers
BUMBLE BEE FOODS	Canned Tuna (Albacore and Light)
HIGH LINER FOODS	Aquaculture for Frozen Shrimp
SEA PORT PRODUCTS CORP	Antarctic Toothfish
SLADE GORTON	Fresh Farmed Atlantic Salmon

Table 1: Participants & Products

Each participating company had a project team that included the following members:

- Proof of Concept sponsor (NFI Traceability Work Group Member)
- Business owner (Food Safety/QA/Traceability)
- Operations (function depends on CTEs assigned)
- IT (data management/data transport)

7 Parameters

7.1 PROCESSES

In order to gain the most insight about the supply chain, a wide variety of processes were examined during the Proof of Concept, including:

- Wild-caught salmon transformed to salmon burgers with additional ingredients
- Farmed shrimp from Thailand
- Fish caught and shipped directly to retail customers (shrimp, tuna, and toothfish)
- Processed farmed salmon

7.2 CRITICAL TRACKING EVENTS (CTEs)

The Proof of Concept used the CTEs identified by IFT for the FDA FSMA pilots. Definitions for the *Transformation, Transportation,* and *Depletion* CTEs are provided in Table 2 below.

CRITICAL TRACKING EVENT DEFINITIONS		
TRANSFORMATION-TYPE EVENTS Events that typically support internal traceability within the four walls of a supply chain company	**Transformation Input**	An event where one or more materials are used to produce a traceable product that enters the supply chain. (NOTE: Materials used to produce products for immediate consumption by consumers are reported as Consumption events.)
	Transformation Output	An event where a created traceable product is packaged and labeled for entry into the supply chain.
TRANSPORTATION-TYPE EVENTS Events that typically support external traceability between supply chain companies	**Shipping Event**	An event where traceable product is dispatched from a defined location to another defined location.
	Receiving Event	An event where traceable product is received at a defined location from another defined location.
DEPLETION-TYPE EVENTS Events that capture how traceable product is removed from the supply chain	**Consumption Event**	An event where a traceable product becomes available to consumers (Point-of-Sale or Prepared).
	Disposal Event	An event where a traceable product is destroyed or discarded or otherwise handled in a manner that the product can no longer be used as a food ingredient or become available to consumers or customers.

Table 2: Critical Tracking Event (CTE) Definitions

7.3 KEY DATA ELEMENTS (KDEs)

The IFT Report included the set of KDEs that were used to support the Critical Tracking Events during the FDA FSMA pilots. Thus, when the group set out to identify the KDEs for the Proof of Concept, they began with the list of KDEs from the IFT Report (presented in Table 3 below).

KEY DATA ELEMENT	TRANSFORMATION		TRANSPORT		DEPELETION	
	INPUT	INPUT	SHIPPING	RECEIVING	CONSUMPTION	DISPOSAL
EVENT TYPE	R	R	R	R	R	R
EVENT OWNER	R	R	R	R	R	R
DATE	R	R	R	R	R	R
TIME	R	R	R	R	R	R
EVENT LOCATION	R	R	R	R	R	R
ITEM ID TYPE	R	R	R	R	R	R
ITEM ID	R	R	R	R	R	R
BATCH/LOT/ SERIAL#	R	R	BP*	BP	BP	BP
QUANTITY	R	R	R	R	R	R
UNIT OF MEASURE	R	R	R	R	R	R
BATCH/LOT RELEVANT DATE	C	C^	C^	C	BP	BP
ACTIVITY TYPE	R	R	C	C		
ACTIVITY ID	R	R	C	C		
SUPPLIER IDENTITY	C	C	C	C		
TRADING PARTNER LOCATION			R	R		

R = Required Data

C = Conditional Data; The need for this data would be determined by business circumstances;
^ Relevant Date should be reported by Suppliers for Shipping Events and for Transformation Output Events.

BP = Best practice is to capture the batch/lot number for Transport and Depletion Events whenever possible; however, if not feasible, Batch/Lot Relevant Date or Activity ID must be provided.
*Batch/Lot/Serial numbers should be reported by Suppliers for Shipping Events.

Table 3: Key Data Elements from the IFT Report

This KDE list was the starting point for the Proof of Concept. However, it quickly became apparent that companies did not need this level of detail to be captured for each event *if you assume the use of GS1 Standards*.

For example, assuming GS1 Standards for unique product identification [i.e., Global Trade Item Number® (GTIN®)], the KDE *Identification Type* would not be needed. Likewise, assuming GS1 Standards for party/location data [i.e., Global Location Number (GLN)], a KDE like *Supplier Identity* would not be necessary (i.e., because detailed information about supplier identity is available in the attributes associated with the GLN).

With these insights, the group was able to refine the list of KDEs to be captured during the Proof of Concept to include only the following KDEs (12 total):

- CTE Type
- CTE ID
- Event Owner (GLN)
- Date/Time
- Event Location (GLN)
- Trading Partner (GLN)
- Item ID (GTIN)
- Lot/Batch/Serial#
- Quantity
- Unit of Measure
- Activity ID
- Activity Type

7.4 SUSTAINABILITY DATA ELEMENTS

To support the Proof of Concept, a list of seventeen (17) data elements related to sustainability were identified. However, it should be noted that trading partner needs surrounding sustainability attributes were not clear, and often varied by type of fish. The term "sustainability" meant different things to different members of the supply chain. As a result, identifying the data elements that would be needed to support "sustainability" was quite subjective. Moreover, there were no uniform or standardized definitions for the data elements identified as "sustainability attributes." Table 4 presents the sustainability attributes used in the Proof of Concept with the definitions developed by the group.

SUSTAINABILITY ATTRIBUTES	
ITEM CODE	Product owner's unique identification number
LOT NUMBER	An identification number assigned to a particular quantity or group of material from a single process
PRODUCTION AREA	The area where the product is grown/processed
COUNTRY OF ORIGIN	The Country where the product is grown/processed
WILD - MANAGEMENT ENTITY	The organization/association responsible for managing the activities of "production"
WILD - MANAGEMENT ZONE	The areas with defined characteristics and qualities for defined levels of development/production
WILD - CATCHING COUNTRY	The Country where the fishing vessel is registered
WILD - FISHING METHOD	Techniques used to catch fish that might include: hand fishing, spear fishing, netting, angling
WILD - BLUE OCEAN RANKING	Seafood rankings prepared by Blue Ocean Institute to source responsibly caught seafood and to educate consumers
WILD - MBAQ RANKING	Seafood rankings prepared by Monterey Bay Aquarium to source responsibly caught seafood and to educate consumers

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SUSTAINABILITY ATTRIBUTES *(CONTINUED)*	
WILD - MSC COC CERTIFICATION	Marine Stewardship Council chain of custody
WILD - RFM COC CERTIFICATION	Alaska Marketing Institute Responsible Fisheries Management chain of custody
FARMED - FARMING COUNTRY	Country and Farm Name where fish is farmed
FARMED - BAP STAR CERTIFICATION	Best Aquaculture Practices and certification requirements: Yes or No
FARMED - CERTIFICATION NUMBER	Farm Certification Number, GAA or BAP Star Certification Number, etc.
FARMED - FOOD SAFETY CERTIFICATION	GFSI Training and Certification to BRC, IFS, FSSC22000 and SQF
FARMED - SUSTAINABILITY CERTIFICATION	B2B Supply Chain organizations that wish to demonstrate the environmental or organic merits of their products follow Global Standards like Fairtrade, Rainforest Alliance, Utz Certified, Organic, etc.

Table 4: Sustainability Attributes

Although the seafood industry has been interested in sustainability data, industry has recognized the need to focus on the KDEs and CTEs that must be identified, shared, and captured in standardized format for traceability purposes. Therefore, sustainability attributes were evaluated as additional value for this Proof of Concept.

8 Methodology

The first step was to determine what each of the participating companies does for a specific product, and then outline the process flows from harvesting through processing through shipping to stores/restaurants. This effort is critical as it lays the foundation for understanding what is happening to products (CTE) and what needs to be known about them (KDE). (Once the process was understood, the team broke out the CTEs that might need to be reported to the FDA in the case of an investigation.) An example of a process flow from the Proof of Concept is provided in Figure B below.

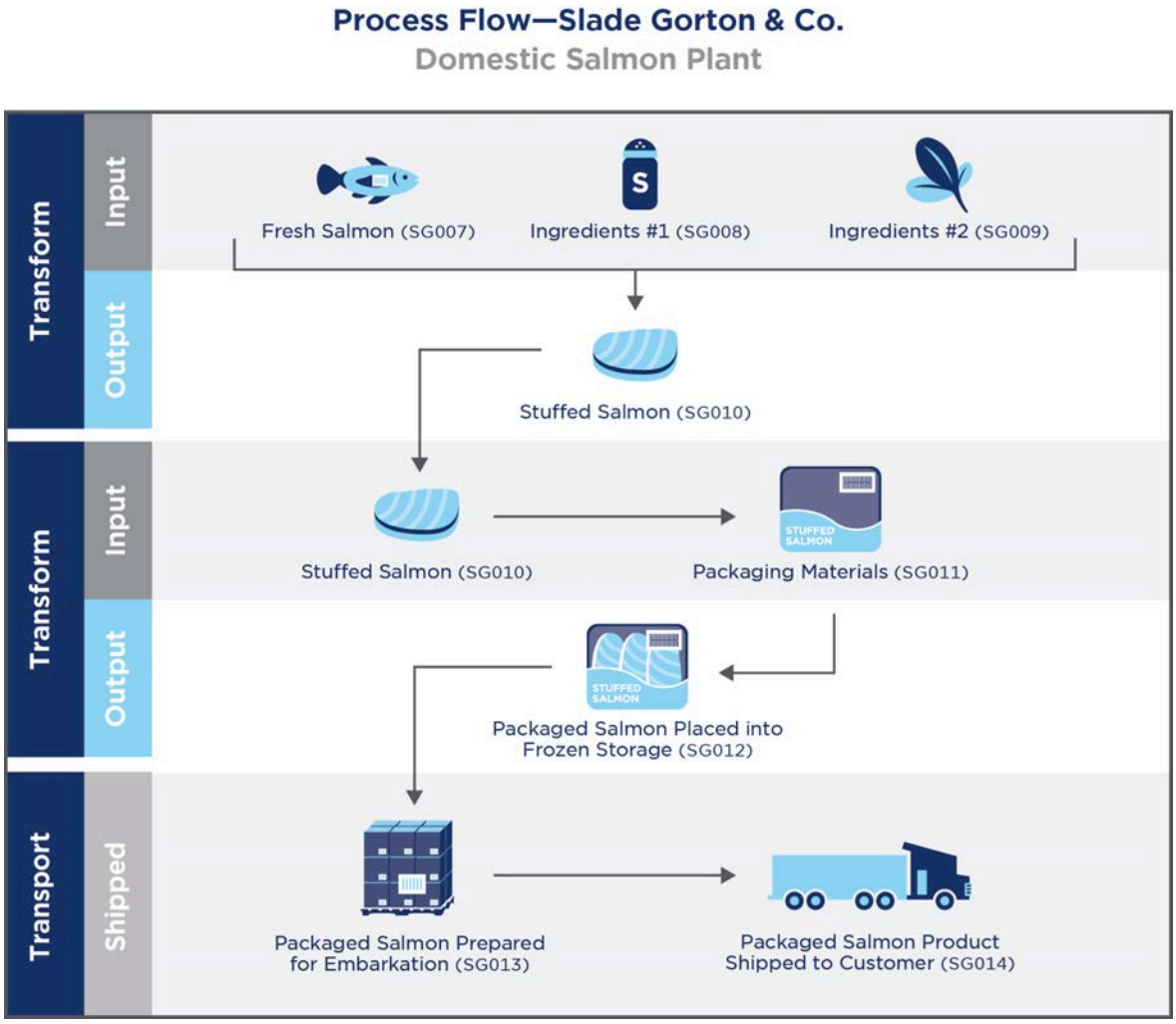

Figure B: Process Flow Example

ⓘ *The initial process flow work was challenging. However, by the end of the project, participants were asking to add more "steps" to the generic process flow chart, which illustrated their depth of understanding as well as their appreciation for the value of the effort.*

Next, the participating companies gathered the supporting paperwork (e.g., purchase order, product work order, bill of lading, advance ship notice, invoice, etc.) in order to piece together the history of what happened to that product by Critical Tracking Event. Once the various documents were collected, the team analyzed the document data to learn how KDEs are connected to CTEs in the actual work flow process.

For example, the source of each Key Data Element for a supplier documenting a transportation and shipping event of a product with a GTIN is summarized below. *(The information below is for informational purposes only, and does not represent an actual company or individual. Any relationship to any person or individual is purely coincidental.)*

EDI EXAMPLE:

EDI Data follows below in this column	**Explanation of the EDI Data is in this column**
EDI Segment	**EDI Segment Comments**
ST*105*000010~	105 Transaction set start, with unique ID 000010
BGN*02*REPORT 127*2010430*1155***IM~	A new Report 127 dated 4/30/2014 at 11:55 AM, A Critical Tracking Event report
NM1*O2*4*FANCYFISHCOMPANY******UL*0061414001003~	Fancy Fish Company is the originating company, with a GLN of 0061414001003.
Detail Information follows ----------	
HL*1**EV~	Report Level of the transaction
EFI*00~	Non-classified company report
HL*2*1*BE~	Business entity/event owner/event reporter
NM1*HA*4*FANCYFISHCOMPANY******UL*0061414001003~	Party reporting the event is Fancy Fish Company
PER*IC*DAVIDJONES*TE*5553259832*EM*DJ@FFC.COM~	Contact is David Jones, with phone & email
HL*3*2*41~	Product Level
NM1*ALO*4*FANCYFISH PROCESSING PLANT #4~	Event/activity location is Fancy Fish Processing Plant 4
N3*1427 E. HARVARD AVENUE~	Located on Harvard Avenue
N4*Seattle*WA*31523~	Located in Seattle,WA
DTM*AAH*20140401~	Event date occurred was April 1, 2014
LM*FD~	Code source values provided by GS1 US
NM1*ST*4*FRESHISBEST WHSE******UL*0061414102124~	Ship to location was Fresh is Best warehouse
Product Input #1	
LQ**T1 ~	T1- Transformation Input Event
LIN*UK*00641414100002*SK*8MP389383~	Fish loins GTIN and SKU
DTM*710*20140101~	Relevant date of product
QTY*01*25*CT~	25 cartons of fish loins used
REF*BT*F-310063~	Input batch ID
REF*7R*130123-06*Production Order	Production order 130123-06
Product Input #2	
LQ**T1~	T1- Transformation Input Event
LIN*UK*00641414100014*SK*8XP38B36~	Bread crumb product GTIN and SKU
DTM*710*20130103~	Relevant date of product
QTY*01*10*CT~	10 cartons of bread crumbs used
REF*BT*59023AKA~	Input batch ID
REF*7R*130123-06*Production Order	Production order 130123-06
Product Output	
LQ**T2~	T2- Transformation Output Event
LIN*UK*00641414100113~	Fish patty GTIN
DTM*710*20140401~	Relevant date of product
QTY*01*105*CT~	105 cartons of fish patty product produced
REF*BG*CCD201303000001**EG^CCD20130300105~	Serial number range of product produced
REF*CAI*130123-06* Production Order ~	Production order 130123-06
Shipped Product	
LQ**S~	S- Shipping Event
LIN*UK*00641414100113*SK*8ZP38C30~	Fish Patty GTIN and SKU
DTM*011*20130222~	Ship date of product
QTY*01*40*CT~	40 cartons shipped
REF*BG*CCD201303000001**EG^CCD20130300040~	Serial number range of product shipped
Summary Level follows	Transaction set close-out
SE*39*000010~	39 segments were transmitted for this transaction

9 Process

- Each participating company captured and recorded the KDEs for each CTE defined in the data spreadsheet template.
- The data was managed in a master spreadsheet (see Table 5 below) that was used to track the CTEs and KDEs.
- The group held regularly scheduled, weekly status calls to facilitate the work identified and provide timely status updates.
- A gap analysis of the data capturing capabilities and the format of the information was performed.
- Results and analysis of the data captured, along with data transport modes, was provided for NFI members to use and determine best practice for information sharing.

KEY DATA ELEMENT	TRIDENT SEAFOOD	BUMBLE BEE FOODS	HIGH LINER FOODS	SEA PORT PRODUCTS	SLADE GORTON
CTE ID	TR001	BB001	HLF001	SP001	SG001
EVENT OWNER	0028029981070	0086600000015	0041600000007	0659878000003	0073129000008
DATE/TIME	8/25/2013 11:10-12:00	2011/07/07 0:0:00	1/7/2013	2013/05/14 6:25:00	9/23/2013
EVENT LOCATION	Warehouse	Preparation Facility	0041600000007	Cold Storage	Slade Gorton Warehouse
TRADING PARTNER	A Cannery	Distribution Center	837249	SPP8304	SG1398
ITEM ID (GTIN)	434937	100252	23007283	109457	85261
LOT/BATCH/SERIAL#	12QFF139	BBM11290	201212120097	4855	45003511080
QUANTITY	98	42831	1700	2077.16	8
UNIT OF MEASURE	Cases	Kilograms	Cases	Kilograms	Cases
ACTIVITY ID	928179	1122334455	12102726	C3100	4500235111
ACTIVITY TYPE	Purchase Order	Purchase Order	Purchase Order	Invoice	Purchase Order

Table 5: Proof of Concept Data Spreadsheet

10 Key Learnings

The Proof of Concept offered key learnings about each participant's current traceability program, and about the interoperability of those programs in achieving traceability. Participants discovered that their individual programs did not align seamlessly, and they were able to identify the gaps in the information as well as opportunities to work together to better align how and what they collected (which was easier to do in the collaborative environment of the Proof of Concept as opposed to working one-on-one with each partner). The results highlighted areas within *Identify, Capture,* and *Share* capabilities that could be optimized by implementing processes that leverage existing investments in GS1 Standards. These learnings aligned with both the *U.S. Seafood Traceability Implementation Guide* and the IFT Report, each of which emphasizes the importance of a standards-based approach to process design and management.

Some of the key learnings are described below:

- The only standardized data element was *Event Owner* represented by Global Location Number (GLN). There is opportunity to further optimize the value of that GLN by using it for identification within internal systems, which was not always the case at the participating organizations today.
- Every other data element was in different formats and values. (Even date and time were not standardized, *see below*.) There is opportunity to enhance traceability by implementing standards across these other data elements.

KEY DATA ELEMENT	TRIDENT SEAFOOD	BUMBLE BEE FOODS	HIGH LINER FOODS	SEA PORT PRODUCTS	SLADE GORTON
DATE/TIME	8/25/2013 11:10-12:00	2011/07/07 0:0:00	1/7/2013	2013/05/14 6:25:00	9/23/2013

Table 6: Example of Inconsistent, Non-Standardized Data (for the KDE Date/Time)

- Trading partner needs surrounding sustainability attributes are not clear, and often vary by type of fish. Participating companies were not able to identify all of the sustainability data elements needed.
- Not all sustainability attributes need to be in a structured format—*as long as the person processing the transaction knows what it means.* There should be a business process to determine which sustainability attributes require a standardized format.
- There is a need for CTE identifiers to relate all parts of the CTE.

These learnings underscore the importance of standardized product and location identification, as well as standardized data requirements.

11 Key Insights

The Proof of Concept provided insights that enable participants to prepare a roadmap to guide the development of their traceability programs going forward.

1. Collaboration is key.

- Working together to define and understand process flows across the supply chain is a valuable exercise that enriches understanding about traceability.

2. Use of a common language is essential for supply chain visibility.

- The common language should be leveraged across all systems.
- Standards are recommended for use within both internal and external traceability.
- This insight aligns with IFT finding that standardized data elements and formats are essential for conducting successful trace forward and trace back investigations when time is of the essence.

3. Companies do not need to capture the level of detail included in the list of KDEs in the IFT Report if GS1 Standards for unique identification and data are used (e.g., Identification Type, Supplier Identity, etc.).

4. Implementation efforts need to focus on CTEs with supporting KDEs captured electronically, and a migration framework for all companies to implement.

5. Each organization needs to design a process to uniquely identify products, and capture and store data in order to be able to answer questions in the event of a simple business inquiry or regulatory investigation.

- Food safety personnel and IT personnel need to work together to create and manage this process.
- This insight is aligned with and in preparation for IFT Recommendation 3: *"Each member of the food supply chain should be required to develop, document, and exercise a product tracing plan.* "

6. Industry discussion is needed to determine which sustainability attributes need to be recorded and shared, and how. [This will most likely not be physical event data (CTE), but rather dynamic information to be shared with product description data through Electronic Data Interchange (EDI) or the Global Data Synchronization Network™ (GDSN®).]

7. By enabling visibility, companies will also be enabling supply chain traceability as well as solutions to other business challenges, including the sharing of sustainability information.

- *Identify* / *Capture* / *Share* of sustainable attributes that are KDEs should be considered an additional value.
- *Identify* / *Capture* / *Share* of sustainable attributes that are not KDEs should be evaluated for cost/benefit.

8. Improving business processes always involves multiple stakeholders from an organization.

- Business personnel and IT personnel have very different perspectives about information. Therefore, participation by IT personnel is essential for understanding what is involved in analyzing CTEs and KDEs.
- Subject matter experts (SMEs) across different specialties, including business process and food safety/QA professionals, are essential to fully understand issues and opportunities.
- Business as well as technical expertise, and the ability to communicate between different functional areas, are key to success—*which is what participation in industry efforts like readiness programs affords participants to do.*

9. It became apparent that approaches and processes used for internal traceability also enabled easy data exchange with external partners, including consumers.

12 Next Steps

Building on the knowledge and insight gleaned from the Proof of Concept, participants have identified three focus areas for their next steps. The first focus area is sustainability attributes. The Proof of Concept revealed that the term "sustainability" meant different things to different members of the supply chain, and trading partner needs surrounding sustainability attributes are not clear. Therefore, participants will work to clarify sustainability attribute requirements with retailers. The second focus area is EDI transactions. Participants will work to format EDI transactions for data exchange of CTEs. The third focus area is data interpretation. Participants will test and seek proof of data interpretation outside of the four walls of an individual organization during Phase 2 of Proof of Concept.

13 Conclusion

Developing a successful traceability program is a journey. Companies implement various components, test and collaborate, and enhance and update. The Proof of Concept reinforced the essential role of unique identification, and of capturing and sharing information in a standardized way. In addition, it underscored the value of GS1 Standards, which enable an interoperable process that can work with any technology provider or trading partner.

The Proof of Concept enabled participants to assess the current state of traceability data today, and to perform a gap analysis between the current state and the desired state. By evaluating their own traceability programs in the context of the *U.S. Seafood Traceability Implementation Guide* and the IFT Report, participants gained a roadmap to guide the development of their traceability programs going forward. The Proof of Concept put participants ahead of the game: with the KDEs identified, they can begin enhancing their traceability programs by focusing on data formatting and standards.

The GS1 US Seafood Traceability Readiness Program was established to help companies in the seafood industry implement and improve product traceability processes using GS1 Standards. The program offers education, training, tools, and community support. As part of the program, this Proof of Concept demonstrated the benefits of implementing a traceability program and identified the elements that need to be supported. Whether just starting the process to implement or working to enhance an existing traceability program, the GS1 US Seafood Traceability Readiness Program has resources to support seafood organizations. To learn more, visit www.gs1us.org/seafood.

14 Additional Resources

- Get started with GS1 Standards at http://www.gs1us.org/get-started
- Obtain a GS1 Company Prefix at http://www.gs1us.org/resources/standards/company-prefix
- Create and manage GTINs with Data Driver at http://www.gs1us.org/datadriver
- Download the U.S. Seafood Traceability Implementation Guide at http://www.aboutseafood.com/about/us-seafood-traceability-implementation-guide
- Download white papers and case studies, including *How GS1 Standards Support Critical Tracking Events* and *Integrated Traceability in Fresh Foods: Ripe Opportunity for Real Results* at http://www.gs1us.org/industries/fresh-foods/tools-and-resources
- Learn more about the GS1 US Seafood Traceability Readiness Program at http://www.gs1us.org/seafoodreadiness

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CORPORATE HEADQUARTERS
Princeton Pike Corporate Center
1009 Lenox Drive, Suite 202, Lawrenceville, NJ 08648 USA
T +1 937.435.3870 E info@gs1us.org W www.gs1us.org

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