civiSeafood - GS1+ compliant supply chain

civiSeafood is **seafood industry open source software** based on an already established and accepted set of full cycle Seafood Industry supply chain standards.

civiSeafood is a customised distribution of CiviCRM, an enterprise level software system. The system is being developed through the collaborative participation of the seafood industry and industry stakeholders.

The *Open Sea Commons* is seeking business participants who are involved in any aspect of the seafood supply chain to implement specific use cases, user stories, and further collaboration.

Software overview

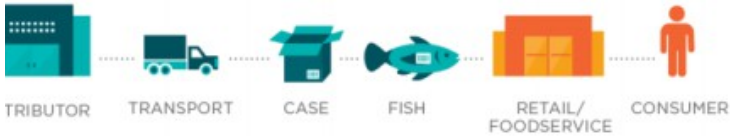
A supply chain is a series of **events** involving interaction between **participants**. ***civiSeafood*** is a powerful event management system. It is open source therefore every event can be customized and sequenced to your exact workflow requirements. Every participant in your business process can be customized and included in your workflow. ***civiSeafood*** is designed to grow with your business and with changing technology. ***civiSeafood*** is your connection to ;.the Internet of Things (IoT), secure global transactions, reputation management, Automatic Identification and Data Collection (AIDC), and **process case management**.

Three customizations in development

civiSeafood GLN (Global Location Number) including wild caught version.

civiSeafood SSCC (Serial Shipping Container Code)

civiSeafood GTIN® (Global Trade Item Number®)



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Seafood traceability is a business process that enables the seafood distribution channel participants to follow products as they move through the supply chain. Each traceability partner must be able to identify the direct source and direct recipient of product. Traceability as a business process can be utilised for a range of business purposes, including but not limited to:

- **Trade Item, Location and Asset Identification**
- **Seafood and Ingredient Recalls**
- **Regulatory Compliance**
- **Sustainability Assurance** 1.2 Scope Use of GS1 standards fo*r Identify – Capture – Share – Use* for seafood traceability enables a more efficient and effective supply chain process for all stakeholders that not only allows for the tracking and tracing of fish moving through a supply chain but importantly the flow of information about seafood in internal systems and between trading partners.

(images and body copy from source documents)

Sources and key references

Standards, guidelines, life-cycle workflow, and identifiers
http://www.gs1.org/docs/traceability/GS1_Foundation_for_Fish_Seafood_Aquaculture_Traceability_Guideline.pdf
Roles overview
http://www.gs1.org/sites/default/files/docs/traceability/Global_Traceability_Standard.pdf
Labeling and product codes
http://www.gs1us.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=735&PortalId=0&TabId=785
Seafood industry overview
https://www.fishwise.org/images/fishwise_traceability_white_paper_august_2012.pdf

Critical Tracking Events (CTEs) - points in time where data should be captured.
Key Data Elements (KDEs) - the data required to support a CTE (unique identifier: lot, date, location, etc.).

FIVE basic events cover all CTEs

1. Product Creation/Repacking
    a. Origination (Create a unique identifier – Product enters supply chain)
    b. Aggregation (bring discrete items together)
    c. Disaggregation
    d. Convert (repack or re-label)
    e. Commingle
2. Product Shipping
3. Product Receipt
4. Product Consumer Sale (Retail Only)
5. Product Depletion (Foodservice and Retail, with qualifiers for depletion)

Acronyms

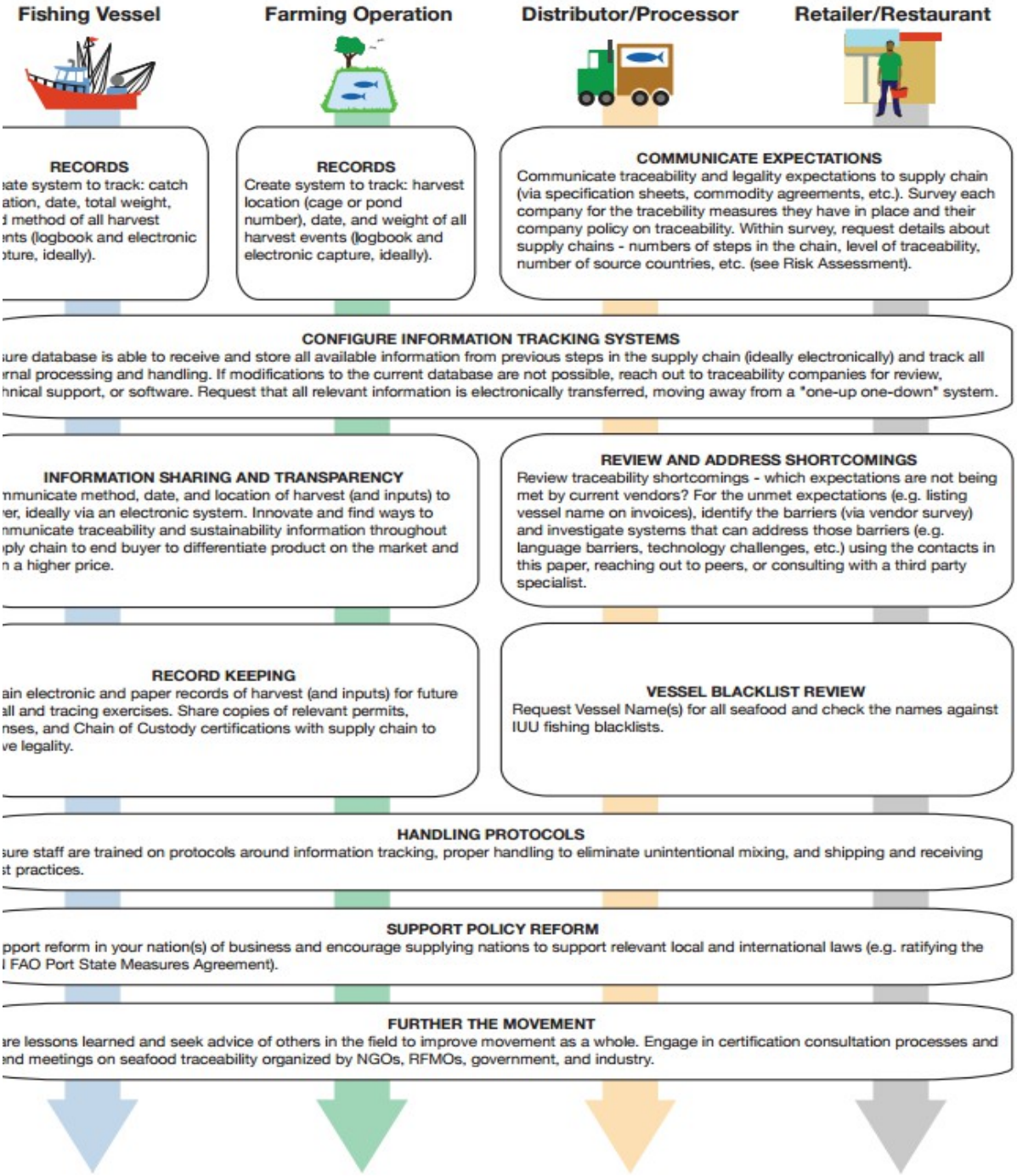
- CTE Critical Tracking Events
- FSMA Food Safety Modernization Act
- GDSN® Global Data Synchronization Network™
- GLN Global Location Number
- GTIN® Global Trade Item Number ®
- IFT Institute of Food Technologists
- KDE Key Data Elements
- NFI National Fisheries Institute

The seafood supply chain

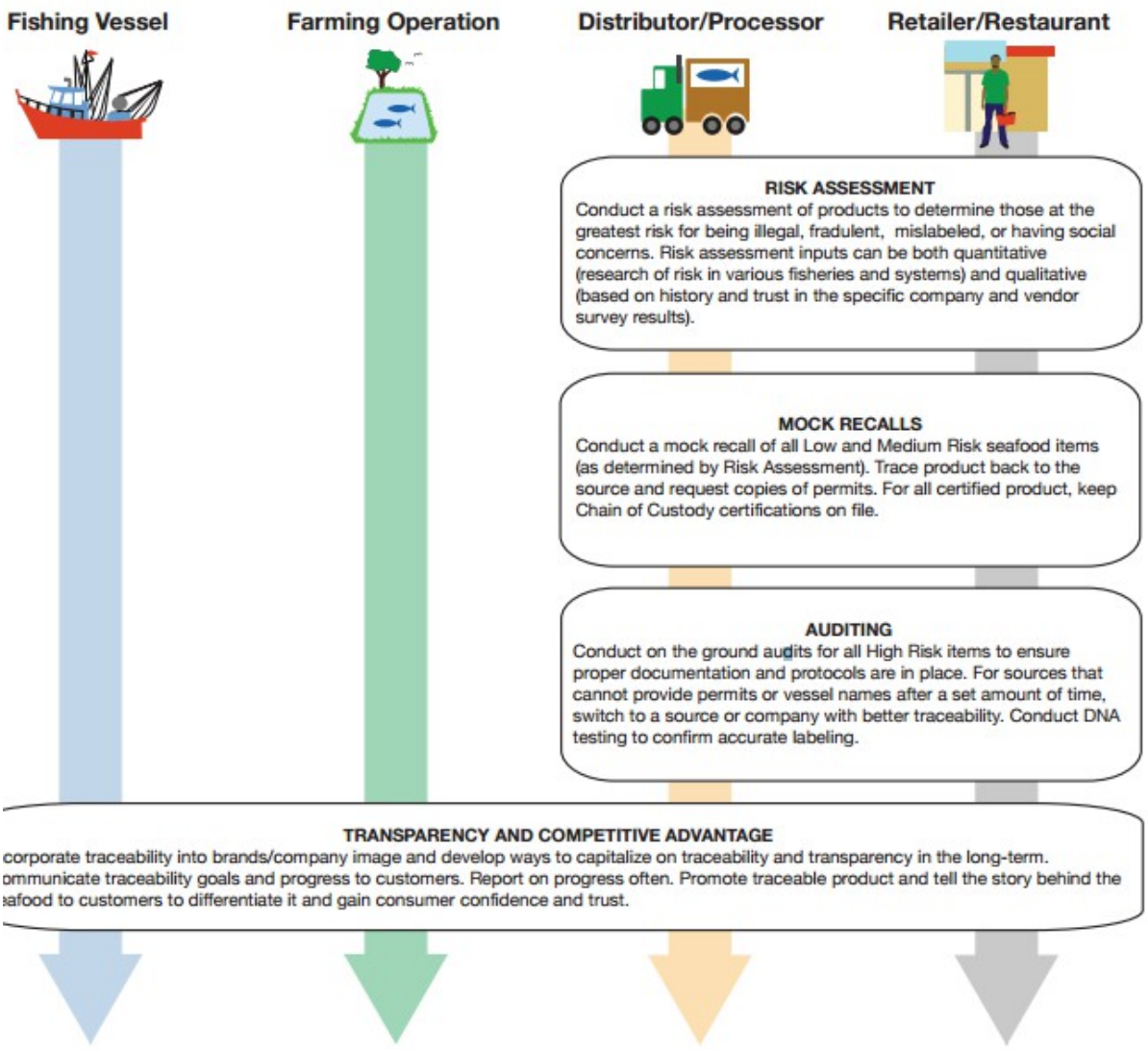
ıure 5: The seafood supply chain can be complex and involve many participants. This graphic depicts ıplified supply chains that bring product to the end consumer.

Traceability next steps guidelines

ure 6: Traceability next steps for seafood businesses. This graphic depicts areas of work for seafood sinesses within four broad categories. They range from initial steps and scoping exercises at the top of the , to advanced steps like improved market strategies at the bottom of the second page. This list is not haustive, but may help as a guide to companies seeking to improve their traceability.

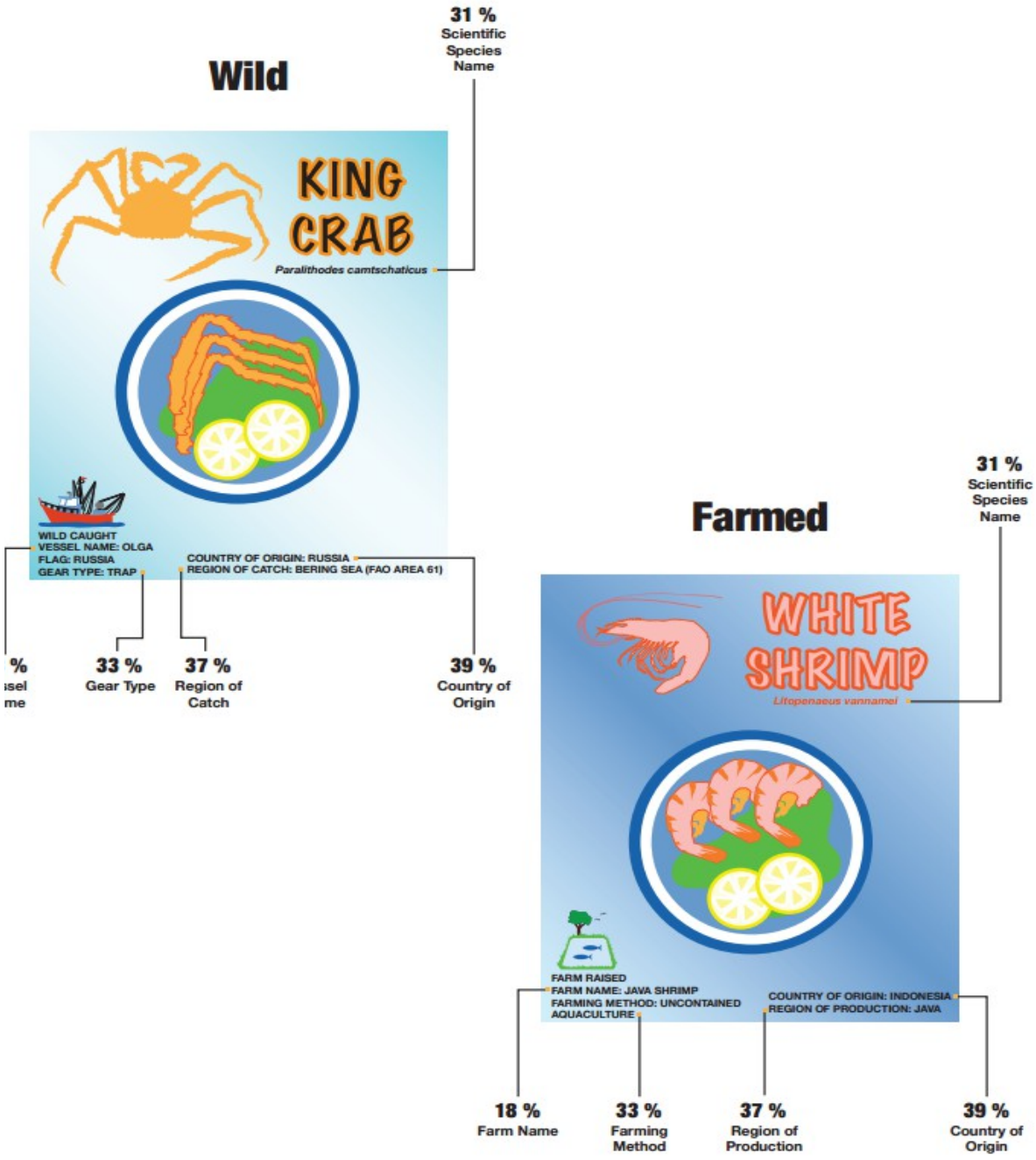


Traceability next steps guidelines (continued)



Survey respondents

ure 4: Survey respondents were asked which information should be displayed on-package for seafood ducts, as many are advocating for greater transparency. The suggested parameters, along with the centage of respondents that would like to see that parameter displayed on the final consumer unit are wn for both wild and farmed product.



Use case actor matrix

(note: zoom browser to read)

	Plan and Organize		Align Master Data					Record Traceability Data						Request Trace				Use Information
	1. Determine how to assign, collect share, and keep traceability data.	2. Determine how to manage links between inputs, internal processes, and outputs.	3. Assign identification to the party	4. Assign identification to physical locations	5. Assign identification to asset as appropriate.	6. Assign identification to trade item	7. Exchange Master Data	8. Assign identification to the traceable item when it is created.	9. Apply the identification to the identification carrier on the traceable item or in an accompanying document when a transformation takes place.	10. Capture the identification of the traceable item or the asset containingit from the identification carrier when despatching and receiving the traceable item.	11. Collect all other data including traceability information from internal and external sources by any method.	12. Share relevant traceability data (send information by any method).	13. Store traceability data.	14. Initiate the trace request	15. Receive the Trace Request	16. Send a Reponse.	17. Receive a Response	18. Take action
al Process Flow																		
ole Item Creator	X	X	X	X	X		X	P	P	X	X	X	X	X	X	X	X	X
ole Item Source	X	X	X	P	X		X			P	X	X	X	X	X	X	X	X
ole Item Recipient	X	X	X	P	X		X			P	X		X	X	X	X	X	X
orter	X	X	X	X	X		X			X	X	X	X	X	X	X	X	X
ation Process Flow																		
Owner	X	X	X	X	X	P	X	X					X	X	X	X	X	X
bility Data Creator	X	X	X	X	X		X	X			X	X	X	X	X	X	X	X
bility Data Source	X	X	X	X	X		X			X	X	P	X	X	X	X	X	X
bility Data Recipient	X	X	X	X	X		X			X	P		X	X	X	X	X	X
Request Initiator														P			P	X

he primary role responsible for the specific use case.

gnates a role involved in the specific use case.

Overview GS1

GS1 is a leading global organisation dedicated to the development and implementation of global standards and solutions to improve the efficiency and visibility of supply and demand chains, internationally and across sectors. The GS1 system of standards is the most widely used supply chain standards system in the world and encompasses the automatic identification of:

Automatic identification

- **Products**
- **Locations**
- **Parties**
- **Assets GS1 Foundation for Fish, Seafood and Aquaculture Traceability Implementation Guideline Release 1.0, Ratified, June 2015 © 2015 GS1 AISBL Page 8 of 46**
- **Logistic units**
- **Shipments**
- **Documents** The GS1 system also provides solutions for service relationships, order to cash transactions, tracking and tracing for business processes and associated message standards, global synchronisation of product master data, barcoding and Radio Frequency Identification (RFID) technologies and standards. GS1 has over 40 years of experience in developing global standards and offers a portfolio of services and solutions to support the implementation of these standards. GS1 is a vendor neutral, not-for profit global organisation with a network of over 110 GS1 Member Organisations worldwide. GS1 only develops standards for global use and applications. The standards are open and freely available. For more details, visit: www.gs1.org

GS1 Global Traceability Standard (GTS)

GS1 standards are often referred to as the "**common language of business**" that provides the framework required to support the traceability business process. This industry best practice implementation guideline is based on the GS1 Global Traceability Standard (GTS) which was developed by industry for industry. It is an application standard, whereby it specifies a particular set of technical standards to which end user systems must conform to meet traceability business requirements. This standard defines the minimum requirements for traceability to be achieved between trading partners. The standard defines the globally accepted method for uniquely identifying the following: GS1 Foundation for Fish, Seafood and Aquaculture Traceability Implementation Guideline Release 1.0, Ratified, June 2015 © 2015 GS1 AISBL

- **Trading partners** - suppliers, customers (including internal), and third parties

- **Trading locations -** a trading entity or a physical functional location such as a warehouse, packing line, storage facility, receiving dock or store
- **Products** – items that a company manufactures, produces, supplies or uses
- **Logistic units** – distribution units that a company receives or ships; and
- **Shipments** – one or more logistics units handled together, both inbound and outbound The GS1 Global Traceability Standard also defines essential information that must be collected, recorded and shared to ensure what is commonly referred to as “one step up, one step down” traceability.

The standard is applicable to companies of all sizes and geography. The key elements in this standard are - terminology for roles and responsibilities of trading partners within the supply chain, traceability process flow and key business requirements and rules needed to perform traceability. While the GS1 Global Traceability Standard may be implemented independently of any specific technology, best business practices require the adoption of barcoding on cases, pallets and consumer items. Businesses are further encouraged to adopt electronic messaging to exchange essential business information. To obtain a copy of the Global Traceability Standard visit www.gs1.org/traceability-retail

Traceability Principles Implementing a traceability system within a supply chain requires all parties involved to link the physical flow of products with the flow of information about them. For effective traceability implementation, the following principles should be considered: 1. Unique identification 2. Managing of batch/lots 3. Linking and maintaining traceability throughout the supply chain 4. Recording of minimum traceability information. Adopting the GS1 system of standards along with industry standards for traceability processes ensures agreement about identification of the traceable items. This supports the visibility and continuity of information across the supply chain. Critical tracking events along with key data elements for traceability of product movement in the supply chain include:

Product movement in the supply chain

- **Production**
- **Transforming**
- **Shipping**
- **Receiving**
- **Packing**
- **Unpacking**
- **Destroying**
- **Selling**

Fish industry support roles

- **Fishing crew -** Catches fish and delivers it in bulk to the producer/processor

- **Factory fishing vessel** - A vessel equipped to catch fish, to perform some basic initial processing and to segregate and sometime grade the various species
- **Fish processing vessel** - A vessel with extensive on-board facilities for processing and freezing fish. It catches fish, processes and grades fish, packs fish in retail-ready packaging and freezes them
- **Fish farmer** - Feeds, grows and harvests fish for distribution to a processor
- **Slaughtering house or slaughtering boat** - Killing fish, sometimes removing the gut, and sometimes splitting
- **Auction** - Receives fish and confirms compliance with sanitary laws, prior to processing and entry into the commercial supply chain.
- **Transport carrier** - Transports caught and harvested fish between any trading partners, physically handles trade items (cases or pallets), maintains sanitary and temperature controls, and maintains accountability information (temperature, traceability, etc.)
- **Producer/processor** - Receives fish in bulk from fishing crew a factory fishing vessel or auction, then cleans and fillets the fish, packs into boxes and ships to a distribution centre
- **Distribution centre** - Receives fish from producer/processor, a fish processing vessel or fishing crew, then ships to other parties.
- **Wholesaler** - Receives product from distribution centre and ships to restaurant to order. These organisations are also referred to as “foodservice distributors”.
- **Restaurant** - Receives product from wholesaler and consumes it to make prepared food eaten on premises. (Includes food prepared in schools, hospitals, etc.)
- **Retailer** - Receives fish from upstream supplier and sells the product to consumers.

Required traceability data elements

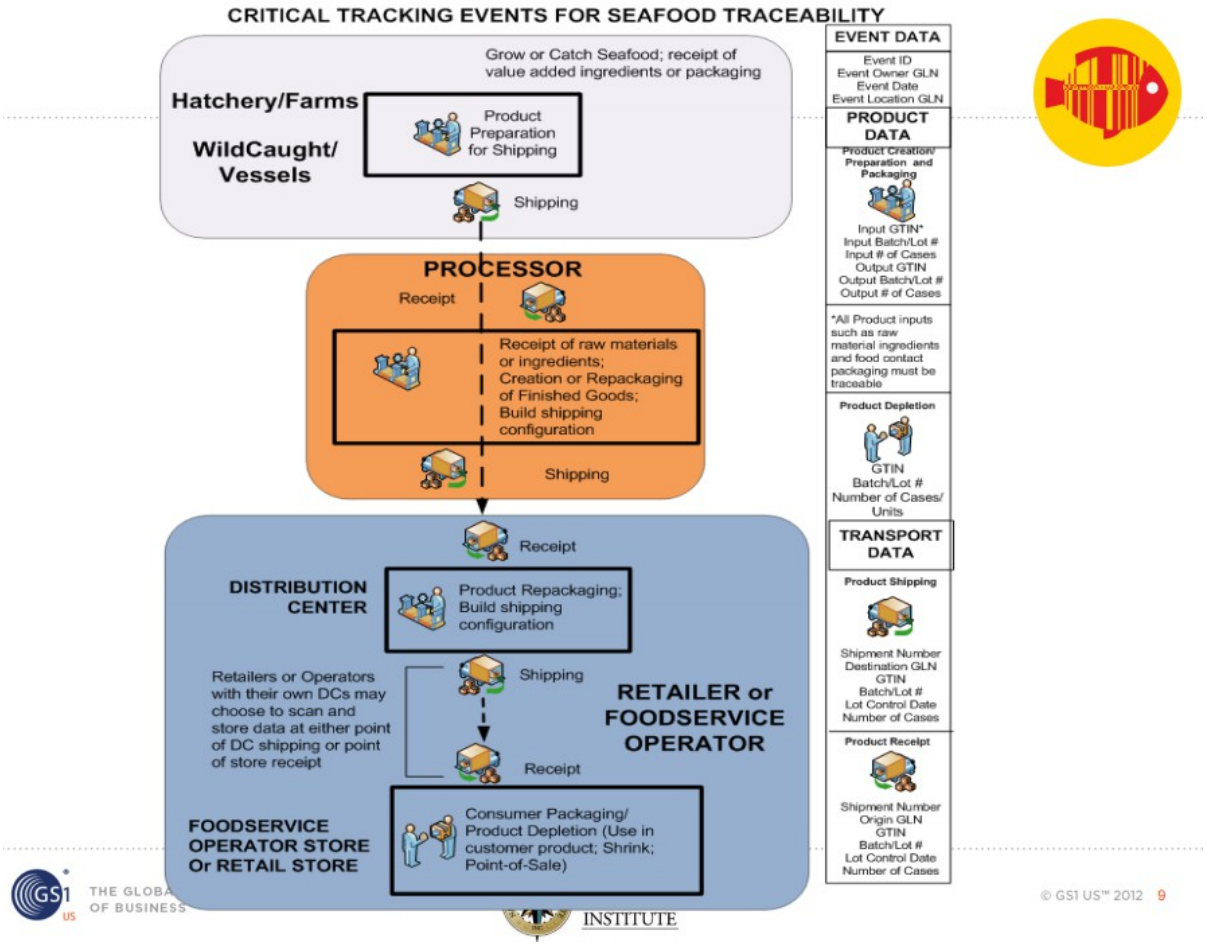
The traceability data elements required are the same for all seafood products. Best Practices are that the following data elements are included in the paper-based Manifest and the electronic ASN/Despatch Advice:

- **Global Trade Item Number** GS1 Foundation for Fish, Seafood and Aquaculture Traceability Implementation Guideline Release 1.0, Ratified, June 2015 © 2015 GS1 AISBL Page 26 of 46
- **Serialised Shipping Container Code**
- **Batch/Lot or Serial Numbers**
- **Quantity shipped**
- **Shipping and Receiving Dates**
- **Ship From and Destination Locations**

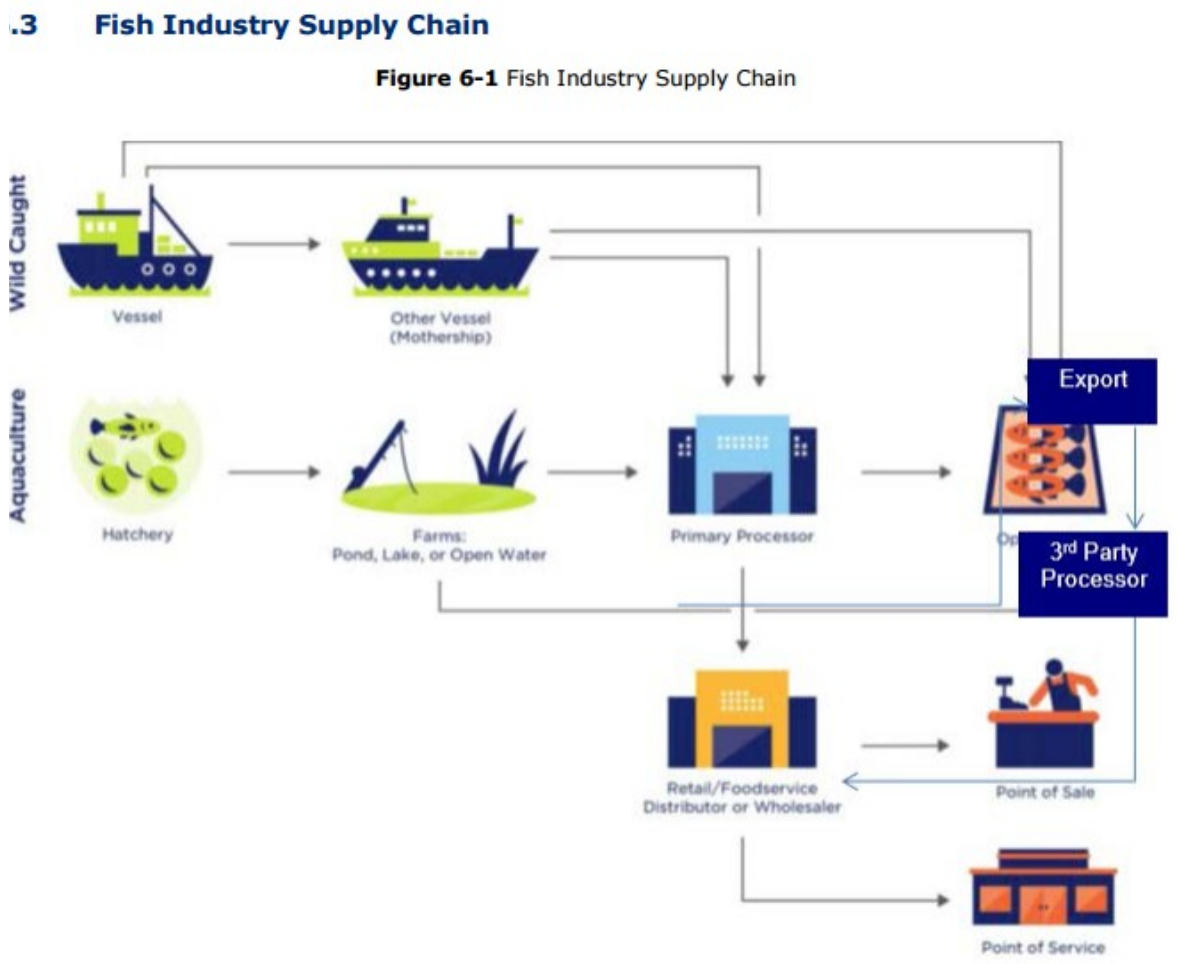
In addition, other useful information such as the following may be included as appropriate for your records:

- **Stock Keeping Unit (SKU)** or other supplier product identification reference
- **Production Date** IF Product is for retail store-processing or food service use
- **Sell-By Date** OR Best-Before Date IF applicable
- **Country of Origin Labelling Statement** OR ISO Country Number(s), if applicable
- **Labelling for wild caught or farm raised**

Critical Tracking Events



Fish industry supply chain



GS1 standards in seafood

WHAT IS A GTIN?

- GTIN = Global Trade Item Number®
- A globally unique and unambiguous product identification number used to identify trade items (i.e., products that may be priced, ordered or invoiced at any point in the supply chain)
- Can be an 8, 12, 13, or 14-digit number
- Easily defined data structure
  - Company Prefix + Item Reference Number + Check Digit (8, 12 or 13)
  - Indicator Digit + GS1 Company Prefix + Item Reference Number + Check Digit (14)
- **Examples**:

UPC-A (GTIN-12)

ITF-14 (GTIN-14)

GS1-128 (GTIN-14)

GS1 US THE GLOBAL LANGUAGE OF BUSINESS

NATIONAL FISHERIES INSTITUTE

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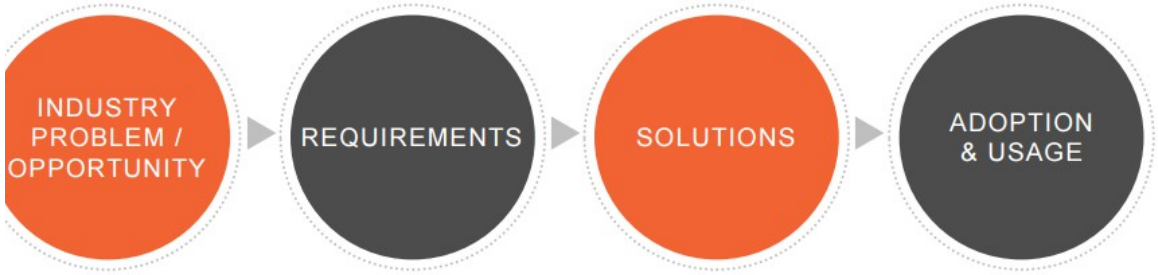

GS1 helps industry identify a problem or opportunity and organize to solve it

GS1 helps industry define their needs/goals and create adoption plans

GS1 develops:
- **Standards**
- **Guidelines**
- **Tools**
- **Readiness Programs**
- **Education & Training**

GS1 measures how industry adopts and uses standardized technology

Sources and key references

Standards, guidelines, full workflow and identifiers
http://www.gs1.org/docs/traceability/GS1_Foundation_for_Fish_Seafood_Aquaculture_Traceability_Guideline.pdf
Roles overview
http://www.gs1.org/sites/default/files/docs/traceability/Global_Traceability_Standard.pdf
Labeling and product codes
http://www.gs1us.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=735&PortalId=0&TabId=785
Industry Overview
https://www.fishwise.org/images/fishwise_traceability_white_paper_august_2012.pdf

US Fish Naming

http://www.fao.org/fishery/collection/asfis/en
The FAO Fisheries and Aquaculture Statistics and Information Branch (FIAS) collates world capture and aquaculture production statistics at either the species, genus, family or higher taxonomic levels in 2 269 statistical categories (2015 data) referred to as species items.

ASFIS list of species includes 12 721 species items selected according to their interest or relation to fisheries and aquaculture. For each species item stored in a record, codes (ISSCAAP group, taxonomic and 3-alpha) and taxonomic information (scientific name, author(s), family, and higher taxonomic classification) are provided. An English name is available for most of the records, and about one third of them have also a French and Spanish name. Information is also provided about the availability of fishery production statistics on the species item in the FAO databases.
http://www.fao.org/fishery/static/ASFIS/ASFIS_Structure.pdf