



## Case Study

# Culinary Collaborations LLC

A Powerful Traceability Program Tracks an Ocean of Data While Preparing for FSMA 204

## Challenge

Food safety is a consistent goal for any food supplier but is perhaps of even greater significance for a company marketing ready-to-eat sushi ingredients. Fish sourced from waters internationally may make a voyage of many steps and miles from farm or vessel to processing, transport, distribution, and several other steps before arriving on patrons' plates. The concern for sustainability – from centuries of over-fishing of some species and the effects of climate change – coupled with rigorous food safety measures governs responsible players in the industry like Culinary Collaborations LLC (CCL). A journey from bait-to-plate, or hatchery-to-plate, is one requiring more than just the capture of seafood itself, but the data points that identify the “what, where, when, why, how, and who” of that meal.

## Solution

CCL uses GS1 Standards as the foundation for comprehensive supply chain visibility to assure food integrity. By using GS1 Global Trade Item Numbers® (GTIN®s) to identify items, and marking them with barcodes, items are more easily identified and tracked throughout the supply chain. With Global Location Numbers (GLNs), internal and external locations and various business entities can be identified. Additional item attributes can be captured about the product within GS1-128 barcodes, which are frequently used in global distribution channels. Following these standards helps enable companies to identify the origin and track the journey of a filet or nori wrap. By communicating the status and attributes of goods using GS1's data sharing standard – Electronic Product Code Information Services (EPCIS) – CCL's supply chain can be enabled to speak the same language as they trace their products.

## Benefits

- **Food Safety.** Because CCL has implemented traceability using GS1 globally recognized standards, and leveraged its technology, consumers can enjoy their favorite delicacies, knowing that the means of harvest, processing, transportation, and more follow established food safety guidelines.
- **Sustainability.** CCL is committed to the Global Sustainable Seafood Initiative (GSSI) benchmarked programs. Through the use of a traceability system based on GS1 Standards, CCL and its certified suppliers carefully document every step along the supply chain to help satisfy the conservation-conscious that sustainable practices protecting CCL's marketable species have been employed to bring the food to market.
- **Societal impact.** The value of some seafood encourages fraud, counterfeiting, and exploitation in some areas of the world. Using GS1 Standards to carefully track the seafood and assess fishing operations in the global supply chain, CCL's operations support a positive impact where it conducts business.

## Culinary Collaborations Reels in the Benefits of Traceability

One might not automatically think “sushi” at the mention of lakeside Rochester, New York. But Michael McNicholas, a 25-year veteran of the seafood industry, may have changed all that by locating the company he founded – Culinary Collaborations LLC (CCL) – in upstate New York in 2016. McNicholas’s company blends his former background as a trade development official with Ireland’s government agency governing exports to the Americas with his children’s Japanese heritage.

McNicholas has brought his vision of sustainability and traceability to safely sourcing clean and all-natural food. McNicholas serves on the board of the Global Dialogue on Seafood Traceability (GDST), a consortium of more than 60 companies and associations not only promoting responsible business practices, but a commitment to seafood conservation. GS1 Standards undergird not just CCL’s robust traceability program but support the GDST’s goals for interoperability.

“GS1 Standards really are a differentiator for the seafood industry. They make it possible to trust your food in every respect,” says Renée Perry, vice president of Quality Assurance, Food Safety & Compliance for CCL.

### Angling for Perfection

With 47 major suppliers presently in its global supply chain, the only practical way for CCL to approach traceability was to make the adoption of standards mandatory.

“If you’re going to do business with us, this is a requirement,” Perry says. “At the same time, we’re going to hold your hand. We’re going to help you capture all the key data elements that we’re looking for at each part of the chain.”

First a supplier’s information becomes part of CCL’s master data. Master data linked to GTINs carries a wealth of information, and every shipment references this data. Next, EPCIS event data that includes the GTIN is captured, shared, and CCL works with the supplier of this data to correct errors. Data quality is improved at each step of the process, benefitting both parties.

CCL has developed an Incoming Quality Assurance tool based on pre-established business rules as well as a compliance software platform to further help its trading partners meet the company’s data requirements.



### From Bait to Plate

Since its founding, CCL has adopted Global Trade Item Numbers® (GTIN®s) to identify products in its supply chain; Global Location Numbers (GLNs) to identify locations and entities throughout the world; and labeling cases and totes with GS1-128 barcodes, a highly versatile barcode ideally suited to CCL’s global supply chain. These barcodes contain a GTIN, date, and lot number for each case of fish. CCL also utilizes GS1’s flagship data-sharing standard – Electronic Product Code Information Services (EPCIS) – to exchange event-based data. EPCIS is well suited to connect two or more traceability systems across the supply chain between trading partners and other stakeholders. The standards provide what (the product), when (the date caught or harvested), where (the ocean, ranch, or farm), why (for processing), and much more.

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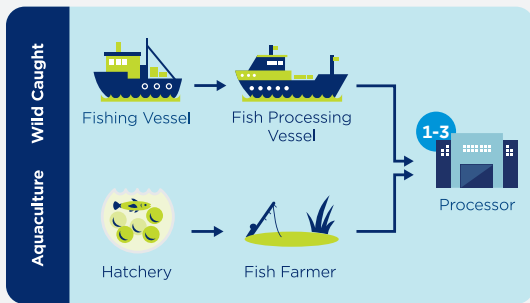
With its end-to-end efforts at traceability powered by GS1 Standards, CCL extends to customers – supermarkets, restaurants, distributors – confidence in their own reputations for freshness and safety.

“Trust through transparency is a core value at CCL. We believe in verification and that happens only through traceability,” Perry says. “Traceability is vital to food safety as well as to establishing the legality of ingredients and validating sustainability. GS1 Standards provide the framework for all of it.”

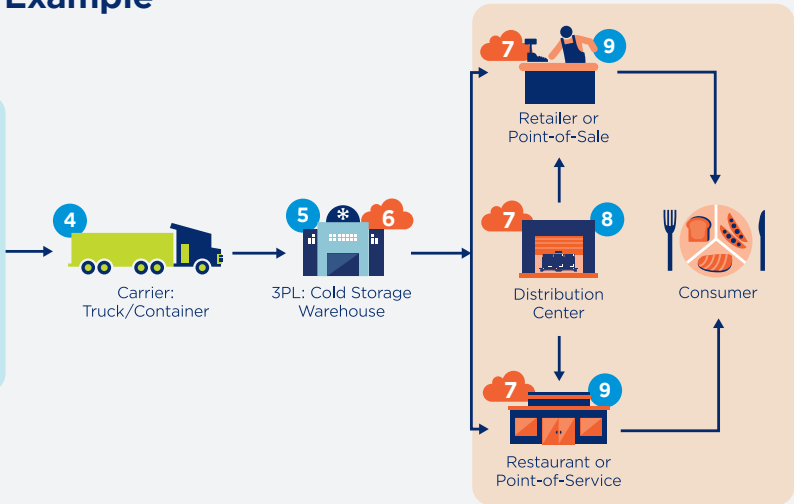
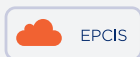


CULINARY COLLABORATIONS

## Culinary Collaborations Supply Chain Example



### Upstream



### Downstream

1. Product specification is approved and GTIN is assigned in CCL's system.
2. GTIN and product master data is shared with upstream and downstream partners.
3. Processor encodes GTIN, production date and lot in **GS1-128 barcodes** and puts labels on cases.
4. Cases are shipped to the Cold Storage Warehouse
  - Carrier is identified with a GLN in CCL's system
5. Product arrives at Cold Storage Warehouse and is palletized by third-party logistics (3PL)
  - 3PL is identified with a GLN in CCL's system
6. CCL gets EPCIS event data about the product shipped from processor to 3PL warehouses and stores it in its system.

7. Product is shipped from Cold Storage Warehouses directly to customers or to Distribution Centers to then be shipped to customers.
  - All physical locations, including Distribution Centers, restaurants, and stores, are identified with GLNs in CCL's system
  - EPCIS transactions are sent to customers as product is shipped from the 3PL Cold Storage Warehouses
  - **EPCIS** transactions are stored in CCL's system as product goes into the DCs.
8. DCs scan GS1-128 barcodes as product is received.
9. CCL shares the EPCIS traceability data with its end customers (operators-retailers).

## Complexity from Origin to Destination

As a strictly North American supplier, CCL is obliged to follow U.S. Food and Drug Administration (FDA) regulations, but its global procurement footprint requires a vaster area of data capture. With approximately 60 percent of all seafood being imported into the United States according to the National Oceanic and Atmospheric Administration (NOAA), the importance of reliable traceability is enormous.

Add to the mix the dozens of conservation groups (some specific to certain species) along with food safety organizations, and regulatory agencies overseeing the seafood industry – and the magnitude of the compliance task is clear and crucial. Digital transformation across such a complex system works best when it's based on a common language that can be understood by all stakeholders – in other words, when they work in an interoperable way. CCL requires suppliers to use GS1 Standards and makes its in-house experts available to them to coach them on implementation. [See sidebar *Angling for Perfection*]

## A Deep Dive into Data

CCL buys the whole fish and traces it at the case level. Each case is labeled with a GS1-128 barcode, which incorporates the GTIN, the date, and lot/batch information. Each case is identified, providing broad context for the origin of the product and its journey through the supply chain.

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KDEs are the individual data points or attributes recorded during each step of the CTE such as the GTIN, date, lot, and the location of each event in the form of a GLN (a processing plant, for instance.) A full chain of custody relies on critical tracking events (CTEs) and key data elements (KDEs) to pinpoint each of the stages from catch to consumption. Regardless of whether the fish is wild-caught or farmed, CTEs are the events capturing the product journey, including harvest, receiving, transforming, and shipping.



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CCL works with suppliers certified to one of the Global Food Safety Initiative (GFSI) schemes that can provide KDEs and CTEs for the chain of custody that begins in the water. And for a highly migratory species like tuna – crisscrossing over 300 million square kilometers of ocean – the specificity of the traceability data is both remarkable and essential. When a ship docks after nine months at sea, and offloads 180 tons of tuna, having trustworthy traceability of the 18 tons destined for the U.S. is extraordinary – and doable thanks to GS1 Standards.

**Compliance Made Possible**

Beyond the health, productivity, fiscal, and branding benefits of supply chain visibility, compliance with fair trade policies would also be impossible without a strong traceability system, as would most regulatory matters governing food. The U.S. FDA Food Safety Modernization Act (FSMA) Section 204 Food Traceability Final Rule, that went into effect in January 2023 with a compliance date of January 2026, has additional traceability record-keeping requirements that will apply to CCL and other companies that handle products listed on FDA’s Food Traceability List. CCL has been implementing GS1 Standards since 2009. With the release of FSMA 204, continued use of the GS1 System helps enable CCL to meet the requirements specified in the new legislation well before the 2026 compliance date.

CCL does not merely abide by the strictures required by law, but is committed to all standards that have a positive impact on the industry, among them the Global Food Safety Initiative (GFSI) that benchmarks food safety standards for businesses and help provide access to safe food and the Supplement Safety & Compliance Initiative (SSCI), an industry-driven initiative led by retailers to provide a harmonized benchmark for recognizing supply chain safety, authenticity, and compliance standards around the world.

**A Boatload of Benefits**

“Good traceability based on GS1 Standards in food supply chains has the potential to reduce risks and costs associated with food borne disease and outbreaks, thereby reducing the magnitude and possible health impacts. At every turn, medical costs and liability are reduced or avoided, and labor productivity is preserved,” Perry says.

Productivity and product costs improve by the reduction in recall scope and time, a major economic incentive for implementing electronic traceability. In fact, traceability has the potential to increase production efficiency even further, by reducing the cost of procurement, movement, and storage. Consumers have demonstrated they are willing to pay a premium for fish produced and sourced in a sustainable manner.

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## About the Organizations

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### About Culinary Collaborations

Culinary Collaborations LLC (CCL) is a premium seafood and sushi ingredient supplier to large operators in the North American market. CCL's unique team of sushi industry experts actively build all-natural, clean, sustainable, and traceable food programs in the U.S. The team specializes in research, development, manufacturing, handling, importing and distributing top-end sushi ingredients and seafood. [www.culinary-collaborations.com](http://www.culinary-collaborations.com)



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GS1 US®, a member of GS1 global, is a not-for-profit information standards organization that facilitates industry collaboration to help 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 (EPC®)-based RFID, data synchronization and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code® (UNSPSC®). For more information, please visit. [www.gs1us.org](http://www.gs1us.org)

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