



FUTURE
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The Business Wins of Seafood Traceability Technology

Case studies to accompany *Getting There
from Here*

This document was prepared by **Future of Fish** to accompany *Getting There from Here: A Guide for Companies Implementing Seafood Supply-Chain Traceability Technology*

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Future of Fish is a nonprofit systems change incubator. We work with entrepreneurs, industry players, and investors to create business solutions to ocean challenges. Future of Fish is committed to an ongoing dialogue about how technology can help the seafood industry become more efficient, rigorous, and responsible.

contact@futureoffish.org | www.futureoffish.org

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Introduction

The seafood supply chain comprises a worldwide network of hundreds of thousands of producers (fishers and fish farmers), thousands of processors, and tens of thousands of wholesalers and brokers that buy and sell over 800 commercially important species of fish, crustaceans, and mollusks. A single fish may circle the globe and be touched by 20 different entities before making its way to the consumer. However, key identifying information—the species name, where and when it was caught and with what type of gear, where it was processed, etc.—rarely accompanies a fish on its journey from water to plate. That level of data is simply not an industry standard.

Some supply chain players have found that they can take advantage of that reality and commit fraud with impunity. But increased media attention about mislabeling, illegal fishing, diminishing fish stocks, and modern-day slavery in the seafood supply chain has energized efforts by nonprofits, consumer advocates, and government agencies to call for true end-to-end seafood traceability. Within the seafood supply chain, retailers are beginning to take up the cause, compelled by both their corporate social responsibility commitments and by consumer demand for better transparency.

But the costs and challenges associated with broad implementation of the data capture and management systems required to achieve whole-chain traceability are not insignificant. Pushing traceability further down the chain—to distributors, processors, and fishers—requires more convincing evidence of the business benefits of traceability technology. Until recently, little work had been done to prove that traceability technology can deliver real business value to the supply-chain players that will ultimately foot the bill for traceability system implementation.

Future of Fish's August 2014 report, *Getting There from Here: A Guide for Companies Implementing Seafood Supply-Chain Traceability Technology*, aimed to help fill that gap by outlining the compelling market incentives of traceability while also raising awareness of the very real human and technological barriers that hamper large-scale adoption. This set of case studies highlights vendor-specific examples that lay foundational evidence for the tangible business wins of traceability technology.

Seafood Business Benefits of Traceability Technology Systems

The ability of fishers, processors, distributors, and retailers to seamlessly share key information about a product traveling through the supply chain can yield a number of credible advantages. For an individual company, traceability technology can improve quota and inventory management, reduce operational inefficiencies and costs, reduce waste and improve yields, increase the pace of decision-making, and fuel innovation across the entire business ecosystem. If widely adopted throughout the supply chain, traceability could create more value for the entire industry.

This report details four major categories of business advantage that have been associated with adoption of traceability technology: effective data and inventory management, operational efficiencies, business intelligence, and branding/marketing. The following sections discuss those benefits by drawing on examples from interviews with twelve key seafood traceability technology providers, as well as a sample of their customers. Additional information on the vendors mentioned here can be found in the Future of Fish report, *Getting There from Here: A Guide for Companies Implementing Seafood Supply-Chain Traceability Technology*, available at <http://futureoffish.org/resources/research-reports/getting-there-here>.

EFFECTIVE DATA AND INVENTORY MANAGEMENT

A growing variety of tools and platforms enables data capture and management from the moment a fish is harvested until it is sold to consumers. The ability to manage yields in various stages of processing, in real time, and trace the origins of all products gives companies more options for grading stock. That, in turn, helps companies properly match quality, quantity, and pricing to maximize revenues and reduce oversold or unsold inventory. Inventory management is a by-product of traceability solutions for many vendors, including the following (in alphabetical order):

BackTracker has developed a traceability and management platform that collects and stores catch and landings data. (The software is marketed in the US as BackTracker and in New Zealand as FishTale). The owners of the data—the fisheries and independent fishers—control who has access to the data and how it is shared. Integrating traceability data with other data sources facilitates the management of fleets and catch quotas. Through BackTracker’s dashboard, for example, fishers can view trading prices and interested buyers for their catch on the fly. “If you catch 10 tons of snapper, you can quickly go on our system to see how much it’s trading for, who else has it, who’s willing to buy, and you can do your transaction right then and there,” says cofounder Mark Soboil. Map viewers enable companies to visually track products as they move through the supply chain. The software can track fish by vessel, date of capture, location, where it was landed and processed, and so on. The data BackTracker collects can also help fisheries make improvements to fleet management and quota management operations. “We now have a better idea of what it’s costing us to catch fish in particular areas,” says Carl Carrington, CEO of Aotearoa Fisheries Ltd. (AFL), a large fishery in New Zealand that was an early investor in FishTale.

Fish Trax Fishermen’s Portal, from Fish Trax Systems Inc., is a secure portal that allows fishers to access information about their own catch-histories, for the purpose of managing future fishing activities. Using a variety of search, sort and visual mapping functions, the data can be viewed by time, region, fish size, and river of origin. Fish Trax was developed through a collaborative effort of Oregon State University, the Oregon salmon industry, the National Marine Fisheries Service, and Advanced Research Corp.

Junction Solutions has added traceability capabilities to its ERP solution for the food and beverage industry. JunctionFB uses batch attributes to track inventory back to a specific country of origin, fishing area, shipping vessel, and arrival port. Companies also can select custom attributes to determine what defines a particular product and which attributes are traced through the supply chain.

Norpac Fisheries Export, a Honolulu-based seafood processing and distribution company, created what it claims was the industry’s first barcode tagging system for fish. Fish are tagged during unloading or at auction with a barcode that contains information on the fish product’s origin, species, weight, grade, date unloaded, vessel of capture, and other pertinent data, which is input via scan codes or a smart device. If a Wi-Fi connection is available on-site, those data can be transmitted directly to the Norpac database. When the fish arrives at the processor, the barcode is scanned and the system automatically prints out a label with both the barcode and human-readable information. The label is attached to the fish and, if the fish is partitioned into fillets, new barcodes are attached that link the partitioned product to the original whole-fish barcode. The approach allows full traceability, forward or backward, across the supply chain. Integrating Norpac’s traceability platform with an accounting system such as NetSuite provides deeper insights into everything from quarterly sales to the type of packaging used. “In terms of managing costs of goods sold, it has revolutionized what we’re able to do,” says Norpac founder Thomas Kraft.

Olrac provides a software tool that enables recording and reporting of all marine and vessel-based data. It includes two main components: a vessel unit and a shore-based unit. The Olrac Dynamic Data Logger (DDL) enables commercial fishers to collect, analyze, plot, map, report, trace, and transmit any data related to fishing operations. On shore, the web-based Olrac Dynamic Data Manager (DDM) enables users to manage, analyze, and report data from individual vessels or entire fleets. The system lets fishers offer products for sale in advance while still at sea. Fishers without onboard computers can access their operational data directly via a web portal at the end of a fishing trip.

Ridium Technologies provides an ERP solution for seafood processors and distributors. Its SeaTouch system utilizes touch-screen applications for automating and streamlining

business processes such as purchasing, production, sales, inventory, and accounting. The system includes lot control and traceability functions, providing the ability to track each item from receipt to sale, according to Lew McCabe, Ridium's founder and president. "SeaTouch cut our overhead dramatically while increasing our gross margin," says Atilio Cerqueira, president of Mayport C&C Fisheries, a fresh seafood processor-distributor in Jacksonville, Fla. The cost savings paid for the entire SeaTouch system in just four months, Cerqueira says.

ScoringAg offers a database that enables worldwide tracing, record keeping, and documentation of agricultural products and seafood with real-time, point-to-point traceability for each individual product. The database simplifies the record-keeping process through an interactive universal traceback methodology. The company says its solution can integrate with multiple platforms across the entire supply chain.

Seasoft ERP has incorporated lot tracking since it was first introduced in 1999, and now includes an interface that automatically pushes traceability details to Trace Register's online portal. The Seasoft ERP software also includes a real-time inventory control solution that helps seafood processors and distributors view inventory across multiple sites to improve accuracy and manage costs more effectively, according to Jim Levy, a Seasoft senior account manager.

ThisFish, a web-based traceability tool developed by Ecotrust Canada, collects catch, processing, and handling information from harvesters and processors. When landing their catch, fishers tag individual fish or label entire fish lots with a unique code. Information about the fish—such as who caught it, where, when, and how—is uploaded to the database through

the web interface and linked to that unique code. As the fish travels through the supply chain, other seafood businesses upload additional information to the code about handling and processing. "The processors, buyers, and exporters tell us that the transparency and accountability has improved quality," says Eric Enno Tamm, team leader for ThisFish. "The fact that the fish harvester knows that their face is going to be on their product increases the incentive for them to take greater care of it."

TraceAll Global's Supplier Exchange is a web-based supplier management tool for supermarkets and restaurant chains. The solution improves supplier management and allows companies to create a complete audit trail of the ingredients, sources, production conditions, and other elements of the inventory they're purchasing.

Trace Register's traceability platform enables seafood companies to share critical product source information at each step of the supply chain to assess product integrity for quality, safety, sustainability, and regulatory requirements. "We make it very easy for companies to capture and enter data in a standardized manner," says marketing VP Andy Furner. The platform includes a rules engine that companies can customize based on what they want to monitor across their supply chains. It was designed to be a user-intuitive dashboard that makes it easy to scan for inconsistencies and identify potential problems quickly. In this regard, Trace Register can serve as a critical tool for product recalls. "Sampling doesn't work in a product recall—you need to track every shipment, every lot," Furner says. "In the event of a problem, you can quickly pinpoint any product that comes from a tainted lot, so you can get much more precise in the scope of your recall."

OPERATIONAL EFFICIENCIES

Because traceability systems enable a clear audit trail for inventory, they can help companies improve internal operations and reduce costs by highlighting the processes and workflows that are most efficient—and those that are not. Improving efficiencies can also have a positive, indirect impact on workforces. For example, employees who aren't constantly putting out operational fires are often more effective in their jobs.

To be most effective, however, many traceability vendors take care to ensure new technology platforms integrate with companies' existing processes. "The idea is not to recreate the wheel," says Norpac's Kraft. Vendors recognize that requiring companies to adopt new operations methods could disrupt existing processes without improving them.

"We need to know the idiosyncrasies of every department within the organization because we're not saying, 'conform to the software'; we are conforming the software to meet the way this company does its daily operations," says Seasoft's Levy. Force-feeding change is a surefire recipe for failure of any technology platform, not just traceability systems. When appropriately integrated with existing systems, however, traceability can be a boon for operations. Here are a few examples (in alphabetical order):

Norpac's users in the value chain have played a critical role in the development of its system, through direct feedback and by allowing the IT staff to observe how they did their jobs. The insights were eye opening: "We spent considerable time looking at the ways that processes theoretically would be executed, but didn't necessarily go down that way because of [employee actions] that couldn't be quantified," says Norpac IT specialist Curtis McCullough. "It's kind of like being a surgeon—you have an idea of what you want to do going in, but once you open up the patient, you see what really needs to be done." Observing how orders were packed, for example,

gave developers important insights about the process that they hadn't considered. "There's a lot that happens at the packing station and it happens very quickly," he says. "So we realized that the very methodical process we created to preserve the integrity of the data was putting a heavy burden on that staff—it was not practical." Developers worked with the packing staff to refine the process in a way that benefited both sides. "They were able to guide us through the challenges they were facing, which allowed us to adapt our controls to get our desired results, but in a way that they were able to pack the boxes much faster," says McCullough. The increased efficiencies captured through the system have helped Norpac reduce staff overtime from as many as 1,600 hours a month to fewer than 100.

Ridium's SeaTouch has helped seafood processor-distributor Mayport C&C Fisheries improve several aspects of its operations. For example, the company now uses touch-screen computers for order processing, eliminating paper-based cutting and pick tickets. The SeaTouch Sales Order Entry module has reduced the time it takes Mayport's sales team to add new orders to the system while improving accuracy. New orders are transmitted automatically to the warehouse, freeing up salespeople to take other calls. Orders are now confirmed within minutes instead of hours. "Our sales staff is now selling more than ever because they are more available to our customers," says Mayport C&C Fisheries president Cerqueira. Total sales per order and profit per order have both increased since the company deployed SeaTouch, he added.

Traceall Global includes an asset-tracking tool called the Product Integrity Monitoring System (PIMS), which helps retailers improve supply-chain efficiencies. The device, placed inside a container, can capture location, temperature, impact, humidity, vibration, pressure, or any other measurable variables, which retailers can access in real time. The ability to protect the integrity of their products while in transit helps retailers reduce product shrink, says Alan Steele, CEO and president of Traceall Global Ltd.

BUSINESS INTELLIGENCE

For seafood companies, the ability to collect and analyze traceability data—combined with other data already collected from their operations—can drive better management decisions; it can help these companies to be more proactive and predictive about their business practices and about the markets in which they compete. Traceability solutions are evolving to support more sophisticated analytics capabilities, giving businesses better insight into their operations and allowing fishers the chance to predict the best fishing grounds and optimize other aspects of fleet operations. Some examples include (in alphabetical order):

Fish Trax Fishermen’s Portal includes a component that lets fishers analyze the data from their catches by time period, size of fish, or area fished. Layering Google maps or oceanographic data on top of fish catch information can provide additional insights. “The overlays help them begin to understand the behaviors of fish under certain conditions,” says John Lavrakas, president of Advanced Research Corp. “They can filter and look at different time frames, or different spatial areas, or look at fish of a certain size or at a certain depth. They can develop best practices in seeking out migratory species.” A second product, the Fish Trax Fisheries Management Portal, helps fisheries managers at the state and federal levels analyze aggregate data to inform management decisions in real time or near real time. “Our goal is to connect information and people to create knowledge and understanding, so that it’s more than just data,” says Dr. Sylvia of Oregon State University. “Analyzing the data can help people discover relationships and make better management decisions.”

Junction Solutions’ JunctionFB records critical tracking elements and other core business data such as product ingredients, packaging, storage, transfer, and shipping information. Analyzing this type of data can lead to useful insights about logistics, labor, and other operational issues. “Every single time you enter a custom-cut order, we keep track of the input and the outputs,” said Christian Hutter, Junction Solutions’ executive vice president of strategy and products. “You can see if there are issues with transportation because every step is time-stamped. At each gate, you can tell if you’re absorbing labor costs properly, by species. This type of reporting after the fact really allows you to fine-tune your business.”

Norpac’s traceability system includes tools to help seafood companies analyze data in real time to make decisions that have a direct impact on their yields—and their businesses—by providing new ways of looking at the information that flows through the supply chain. “It answers questions we didn’t even know how to ask,” says Kraft. Looking at customer behaviors, for example, can prompt salespeople to be more predictive based on past transactions and other activities. “When I was first hired, there was more data than we knew what to do with, but we didn’t have any mastery of it,” says McCullough. “With a lot of trial and error and experimentation, we are figuring out how to interpret the data and how to combine it with other data from our systems to make logical conclusions about our business, our customers, and our vendors. The new information we continue to get from data that’s been here all this time is amazing.”

Olrac’s system includes a number of components that enable users to predict the best fishing grounds and optimize other aspects of fleet operations. Olrac also provides training courses for seafood companies that lack in-house analytics expertise, with a team of consultants that can help companies integrate analytics into their daily business operations.

ScoringAg’s database management solution includes an algorithm that detects abnormal data patterns regarding vessel behavior such as dock location, date, and time of submissions. These types of analytics can be used to detect abnormal spending patterns, identify product relationships, and better predict retail demand.

ThisFish includes a digital dashboard that provides seafood businesses with data on how many visitors viewed their online profile and which products those visitors traced, when, and from what locations. Each business has its own private dashboard, but the data are standardized across businesses as fish products travel through the supply chain. “When a fish is traced in our system it creates a unique web page,” says Tamm, team leader for ThisFish. “We collect web analytics on that trace, and then we funnel those analytics back to the fishermen onto their private dashboard, so they can see where in the world their fish is being traced and whether consumers are commenting on it.” Those comments give fishers and processing companies access to an entirely new level of consumer feedback. “A fish harvester in British Columbia that sells fish to Sobeys in Toronto would never know what consumers are saying about their product,” says Tamm. “But

now consumers are providing direct market feedback, which creates a new level of accountability among the fishermen and processors,” and creates a new opportunity for capitalizing on current market response.

Trace Register’s Data Check tool allows users to set up custom rules for the data they want to monitor from their suppliers or elsewhere in the supply chain. The system automatically analyzes information against those rules and alerts the user of anomalies through a dashboard. “One of the challenges with traceability systems is that you collect a huge amount of data about what’s going on in your supply chain, which can become a real managerial problem,” says marketing VP Furner. “Data Check will automatically monitor what’s going on in your supply chain and looks for red flags so you can focus quickly on potential problems.” By tracking the data over time and correlating with data shared by partners, a company can develop deeper insights about suppliers across the supply chain—information that can be used to better allocate resources and lower risk, Furner says.

MARKETING, CSR, AND BRAND LOYALTY

Traceability is fundamentally linked to the integrity of seafood labeling, including claims of sustainability, species name, catch location, and any other information that is of value to consumers and for which they may be willing to pay a premium. In some markets, verifiable information is becoming a valuable product attribute for seafood. “Marketing will have no credibility unless you have robust traceability in place,” says Trace Register’s Furner.

Traceability can also help protect brand reputation, meet CSR requirements, earn consumer trust, and build customer loyalty. Embedding traceability information into a QR code, for example, gives early-chain players the ability to market directly to end customers with coupons, recipes, or other information that over time can build brand loyalty. “It’s a way to turn a very costly project—compliance—into a revenue-generating opportunity,” said Hutter, from Junction Solutions. Several consumer-facing web portals enable front-end players to enhance their brands by telling the journeys of the fish they catch, process, and distribute (in alphabetical order):

BackTracker’s system includes web templates that allow companies to upload and publish information about their fishing vessels, fishers, products, and so on. Stories and images are then tied to each product via QR code, which consumers scan on a seafood product label or menu. The QR code is linked to a custom web page that can include anything from a photo of the boat and crew that caught the fish, to customer endorsements, to recommended recipes. Using QR codes, consumers can trace products throughout the supply chain and link each unique fish back to the source where it was caught. “It gives the brand instant credibility,” says founder Soboil.

Fish Trax Public Portal provides access to aggregate catch data collected by fishers participating in the Collaborative Research on Oregon Ocean Salmon (CROOS) and West Coast Stock Identification projects. “We have about 60,000 fish that have been tagged with a code number—similar to a barcode—that consumers can use to search the history of a fish at a restaurant or when they purchase it,” says Dr. Sylvia of Oregon State University. Earlier this year, Fish Trax Systems, Advanced Research Corp., and Ariel Seafoods teamed to launch the Fish Trax Marketplace, a consumer-facing mobile application. “More and more consumers want to feel connected to the source of their food, and at a basic marketing level it is about telling a good story,” says Lavrakas, president of Advanced Research Corp. “There are opportunities to differentiate and promote sustainable seafood options. The Marketplace aims to build trust and create value for every seafood stakeholder from fishermen looking to tell their story and differentiate their brand, to consumers seeking information about the origin of their seafood.”

ScoringAg’s site lets consumers and seafood companies track products in the company’s Food Safety database using one of three search methods: ScoringAg’s unique SSI-EID traceback code; the RFID number assigned to the seafood product; or a Premise Identification code, which records the location of a fish when a record is entered into the ScoringAg system. “Everything is in real time. The records are accessible two or three seconds after inputting,” says William Kanitz, ScoringAg’s president. “Companies can use it in-house or go up or down the supply chain. It’s a total traceback system.”

Seasoft offers a lot-tracking and traceability smartphone application, called SeaTrace, that gives consumers and retail buyers on-demand access to detailed information about the seafood they're purchasing. Integrated within Seasoft ERP, SeaTrace utilizes a QR code that, when scanned with a mobile app, shows information about the fisher (including images), when and where the fish was caught, as well as nutritional information.

ThisFish lets fishers create their own online profiles with stories, images, videos, links, and vessel and crew information, which is used to personally brand their catch. "Direct marketing is becoming increasingly popular, especially with younger generations of fishermen," says Tamm, team leader for ThisFish. "They see ThisFish as a great way to build connections with consumers and are looking for ways to extend those connections through social sharing." Processors

and distributors can use ThisFish to create local and regional seafood brands, promoting the unique qualities of products from different regions. In late 2013, ThisFish released a software widget that allows consumers to trace seafood products from a business's own website. It's one of many new ways that fish harvesters can use ThisFish as a marketing tool, says Tamm.

Trace Register offers a marketing module for its Electronic Traceability Platform that lets supply-chain customers market directly to consumers. QR codes direct consumers to a mobile landing page or website where they can learn more about the product they're purchasing. Furner believes traceability can level the playing field for smaller seafood companies, because it allows them to tell a unique story about the fish they're catching. "That type of storytelling can really differentiate the smaller players from the bigger ones," he says.

Conclusion

The anecdotes provided here emphasize some of the potential business benefits offered by implementing traceability. As noted, each system is different, and the needs of each seafood business vary widely: “A small fisherman does not have the same technology requirements or infrastructure as a large processor that’s selling the fish he’s catching,” said Tejas Bhatt, program director of the Institute of Food Technologists. Companies will also need to consider what solutions their suppliers and customers are using. “It’s important to map supplier capabilities with customer requirements,” said Bhatt. “You don’t all have to pick the same solution, but by understanding each other’s requirements, you can come up with a system that meets everyone’s needs.”

Traceability technology in seafood is a relatively new and evolving market. By maintaining old business practices, the industry is missing an opportunity to build value at a time when costs continue to rise. It is our hope that this collection of examples, as well as the original report, will bring clarity around the types of traceability solutions available, the capabilities offered by different vendors, and the multiple ways in which traceability can reduce costs and drive revenue for seafood companies throughout the supply chain.



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