

3.0 THE BUSINESS CASE FOR TRACEABILITY

3.1 INTRODUCTION

Globally, the implementation of traceability systems within seafood industries is being driven both by *compliance-driven factors* – as regulatory authorities respond to societies growing desire to know where food comes from and whether it is safe to consume; as well as *value-driven factors* – as industry partners work to remove inefficiencies in supply chains and build quality and safety as brand values. There is mounting evidence that tangible business value can be created through implementing effective traceability programmes, regardless of the primary driving force.

The business case for the implementation of traceability systems within BC fisheries and aquaculture industries are varied and inter-linked. These are discussed in more detail below.

3.2 IMPROVED SUPPLY CHAIN MANAGEMENT

Traceability is assisting supply chain partners to work together to eliminate inefficient practices that are not value-added to the consumer.

The benefits of better supply chain management include improved real-time inventory management, which in turn reduces product waste as well as ensures a more consistent quality delivery to supply chain end users – the seafood consumer.

New and more affordable technology is at the forefront of this change. New technologies, that are making it easier to record and pass on information about seafood products in digital format, are more cost-effective and more reliable over time. This technology-driven change is making it easier to develop seamless “fisher to fork” information supply chains and supply chain partners are experiencing the benefits of such systems. The finfish aquaculture sector is a leader in implementing these new information technologies in the seafood supply chain.

Supply chain partners are also looking at innovative monitoring solutions that add value to the end product. For example, relatively inexpensive micro-chips containing sensitive and accurate temperature probes are now being inserted into individual high value fish destined for the Japanese market, allowing historical temperature graphs to be generated at any stage in the supply chain, in turn informing quality and pricing decisions⁶.

Improved supply chain management is now extending back to seafood harvesters and growers in recognition that there is data that can only be supplied by these first link partners such as date, area of harvest and feed sources. In particular many individual quota fisheries are now managing fishing effort on a market demand rather than fishing opportunity basis. For example, in the geoduck fishery, processors keep track of every landing that each vessel delivers to them, knowing exactly how much quota each vessel still has to fish and planning accordingly for the market.

⁶ Hashimoto, T., K. Tanaka, H. Niwa. Trial of farmed fish traceability in Japan, 2004 http://www.ean-int.org/Doc/040318_Hashimoto.pdf

3.3 IMPROVING AQUACULTURE PRODUCTION/MANAGEMENT PRACTICES

In addition of assisting in supply chain management, traceability systems are being used increasingly in the aquaculture sectors to improve production and management operations.

Most BC finfish aquaculture businesses exhibit a high level of vertical integration. Their involvement in many stages of the aquaculture supply chain allows them to implement effective identity traceability systems covering the entire upstream chain – from feed manufacturer to breeder to processor. These traceability systems are used as a supply chain production/management tool. In addition, data on feed, medication, and other inputs used in rearing are readily recorded by these systems. By recording quality-related data elements in a traceability system, a downstream link (e.g. processing) can efficiently provide upstream links (e.g. farm) with valuable feedback for management decisions. For example, gaping of fillets recorded by processors would inform the farm managers that excess stress may have occurred during harvest – while observations of ‘pale’ fillets would alert the farm managers to feed-related issues.

Traceability systems also serve as valuable fish health tools for finfish aquaculture. By linking the incidence of bacterial and viral diseases at the hatchery/farm level with specific broodstock, parental lines with a greater resistance to these diseases may be identified, thereby allowing for improvements in breeding programs at broodstock facilities.

Using Traceability to Improve Shellfish Growout Management

Unlike finfish aquaculture, few shellfish growers utilize traceability as a production/management tool. However, to assess its potential in this area, an interview was conducted with Keith Reid of Odyssey Shellfish - one of BC’s most innovative and technologically advanced grower/processors. For this grower/processor, the driving force for a higher level of traceability (e.g. beyond that required by food safety regulations) has been the desire for improved internal management control. Mr. Reid believes that only through improved traceability will businesses be able to determine the actual cost of growing shellfish product and, consequently, determine the actual profitability of the business enterprise. Mr. Reid further believes that automation and standardization (with its associated requirement for improved identity traceability) are the keys to competitiveness within the shellfish industry.

3.4 PREREQUISITE FOR MARKET ACCESS

Compliance with data requirements to supply seafood to key international markets is arguably the single biggest driving force behind the implementation of formalized traceability systems.

The traceability requirements for seafood being imported into the EU are comprehensive and strict. Regulation (EC) No. 178/2002 states that “The traceability of food, feed, food-producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed shall be established at all stages of production, processing and distribution.” This and other EU tracing regulations are outlined in detail in Section 4.2 of this report.

Similarly, seafood suppliers to the US market will have to comply with the US Bioterrorism and Country of Origin legislation, necessitating a reliable and efficient traceability system. The requirements of this legislation are also outlined in detail in Section 4.2 of this report.

While the EU and the US have made the greatest progress in the implementation of seafood traceability requirements, many other large markets are actively developing food traceability data requirements and/or are evaluating traceability pilot projects.

In Japan, the Ministry of Agriculture, Forestry and Fisheries published guidelines for the introduction of food traceability systems, including all seafood, in 2003. A beef traceability system that will require retailers to include additional information on labelling, such as country of origin and distribution channels became compulsory in Japan as of December 2004. Japan plans to implement a similar certification system in 2005 for all farm products. There is strong evidence that a traceability requirement for seafood will follow, as evidenced by the number of seafood traceability pilot projects being conducted. The first of these pilot studies is evaluating the Tracefish data requirements and the EAN Numbering System (which are explained in more detail in subsequent sections of this report).

In addition to Japan's ongoing evaluation of traceability models, Japanese fish consumers may soon be able to access product information – including where and when the fish was caught – through a new cell phone information system. The fishery information system may be available in retail stores as early as 2005

(<http://www.smh.com.au/articles/2004/09/24/1095961862675.html?oneclick=true>).

In the United States fines for failing to meet Country of Origin labelling requirements (COOL) can be up to \$10,000 per product item. With large seafood distributors carrying thousands of product items, these penalties are a significant liability, and distributors are working with their suppliers to develop appropriate labelling (T. Dewer, S&S Seafoods, Oregon, pers. comm.).

Seafood producers also face increasing demands for information from their wholesale and retail clients. For example, BC aquaculture companies are already being asked by prospective customers to answer detailed questions about their operations and product. Some high volume buyers of farmed salmon apply rigorous traceability standards to their enterprises – and demand the same standards of their suppliers. In fact, some of these buyers (e.g. Costco) audit the traceability systems of their farmed salmon suppliers.

The information required by buyers can extend far upstream in the supply chain to include information such as:

- origin of the raw materials used in the feed fed to the fish they purchase,
- genetic information concerning broodstock of the fish that they purchase,
- antibiotic use in the fish that they purchase.

Moreover, buyers require timely responses to their queries. As a result, the salmon aquaculture companies have developed traceability solutions that allow almost immediate answers to production and processing questions.

The reality that BC seafood suppliers wanting to trade in world markets are facing is that without an appropriate traceability system in place, they will not have access to certain markets where traceability systems are a prerequisite.

3.5 IMPROVED HEALTH AND SAFETY ASSURANCE AND IMPROVED RECALL EFFECTIVENESS

Improved traceability of foods makes it easier to provide customer assurance around food safety and improves the efficiency of recall events.

Traceability is also being driven by the need to assure the customer and/or end consumers of specific ingredients or other product attributes. There is evidence that many foreign buyers, even in the absence of specific market access traceability regulations, are requiring basic elements of a traceability system in order to ensure and document product quality standards (Y. Hamakawa, Areo Trading, pers. comm.).

From a regulatory perspective, product traceability can increase the effectiveness of a recall. From a commercial perspective, a comprehensive traceability system can substantially reduce the cost and liability associated with a recall by enabling only impacted product to be withdrawn from the market in contrast to the default option of a ‘shot gun approach’ where all product would be withdrawn.

It is important to recognize that most fish product recalls in North America have, so far, been related to either bacterial contamination as a result of processing (e.g. Ghio Seafood Products of San Diego, California recalled hot smoked salmon distributed by Pacific Shellfish in San Diego during July and August 2001 because it was suspected that the product was contaminated with *listeria monocytogenes*⁷) or because of unlabelled food additives/ingredients (e.g. in April 2003, Pacific Seafood of Portland Oregon recalled its Pacific Fresh Seafood Mix because the imitation crab meat, one of the ingredients in the seafood mix, contained egg whites and wheat flour).

Traceability systems that connect sold product to the seafood processors are probably adequate to effectively addressing the above health and safety issues. However, other seafood health risks are associated directly with the environment from which the product came from. Global awareness and concerns related to the presence of neurotoxicants (e.g. polychlorinated biphenyls or PCBs and mercury) in seafood is present and growing. Although Canada has strict guidelines for chemical contaminants and toxins in fish and fish products with specific limits for a wide range of industrial contaminants, and even though Canadian, including BC, fish products have been tested to be contaminant “free”⁸ what marketers of seafood are acutely aware of is that consumer perceptions are as much fact as scientific evidence. If consumers perceive there is a problem and are thinking and acting negatively about seafood, then there is a problem.

⁷ A micro-organism that can cause serious and sometimes fatal infections in small children, frail or elderly people and others with weakened immune systems.

⁸ Health Canada undertook a specific survey of PCBs, dioxins, furans, polybrominated diphenyl ethers (PBDEs) and veterinary drugs in Canadian fish and seafood in 2002 and found that levels of all contaminants tested for were far below accepted risk levels for all wild and farmed fish sampled.

Food scares in other industries (e.g. BSE in beef) has also focused consumer attention on food safety in general. Negative press (e.g. September 30, 2004 headline in the Vancouver Sun that read “*Fish diet blamed for high mercury levels in 2 BC kids*”) damages the whole seafood industry. In addition, if there is a perception that farmed salmon contains too much PCB (regardless of whether this is scientifically true or not) then the marketing of all salmon, wild or farmed and from all sources, has been shown to be affected negatively.

Importantly, the pressure from consumers to have assurance around health and safety of seafood is growing and is not likely to go away. There is therefore a growing realization that in order for retailers to make content identity and quality claims, they need the support of a traceability system that extends to the harvester level.

3.6 IMPROVED PRODUCT QUALITY AND QUALITY ASSURANCE

Traceability systems can be used to add value to seafood products, both by providing consumers with verification of product quality claims, as well as by providing a mechanism to financially reward harvesters that meet quality standards.

Over the past decade a number of BC fisheries have made significant value gains by pursuing quality advantages. Prices for halibut increased significantly when the fishery moved to an IQ management regime with an extended opening serving a fresh rather than frozen market. Similarly prices for geoduck increased significantly with growth of the live market in Hong Kong and mainland China (although more recent market conditions have resulted in price declines). In contrast the BC salmon fishery has not benefited by pursuing a quality advantage, in part because global production of farmed salmon has resulted in significant price declines, but also because the current fisheries regime (short openings based on harvest opportunity and lack of traceability from processor to harvester) provides no incentive to harvesters to take the extra steps (bleeding fish, adequate icing) to ensure higher quality product. Smaller, niche market processors have demonstrated that the “quality advantage” can be used to add value both at the harvester and processor level (see inset box). Traceability measures have been used quite effectively in other sectors (frozen at sea prawns) to provide the quality assurance to buyers who pay premium prices for this product.

The BC farmed salmon industry faces severe price competition in the US market from producers in countries like Chile, particularly when selling to big box wholesalers. The industry also faces significant human health and environmental sustainability accusations from NGO’s. In the face of these challenges, one BC finfish aquaculture company (Marine Harvest) is adopting a third party audited quality management program (that includes a traceability component) to gain a competitive edge. By adopting the ISO 9001 Quality Management System, Marine Harvest believes that they will be viewed as an industry leader – and will be better equipped to withstand the intense scrutiny of NGO’s.

The finfish aquaculture sector also uses traceability to verify and support environmental and sustainability initiatives (antibiotic use, disease control measures, waste management initiatives). Once organic standards for finfish aquaculture are approved by the Certified Organics Association of BC, companies adhering to the standards (e.g. Creative Salmon) will be able to

utilize their traceability programs to verify that their fish were reared according to the organic standards, and may thereby gain a competitive edge.

**USING TRACEABILITY TO MARKET HIGH QUALITY, HIGH VALUED SEAFOOD PRODUCTS
FAS SEAFOODS,
Victoria, BC**

Bob Fraumeni founded Finest at Sea (FAS) Seafoods in Victoria in 1977 to market seafood products (primarily sablefish, tuna, halibut, salmon and longline rockfish) landed by his own fishing vessels. The focus of FAS is to provide top quality, wild seafood products of known origin. Initially all seafood products were sold into the Asian market, but Bob was anxious to make his high quality product available locally. 'Finest At Sea' was established as a 'boutique-style' seafood company, combined with state of the art freezing, processing, storage facilities, transportation and delivery.

Traceability is a key component of the business strategy at FAS, in that customers need to know which vessel caught which fish, where, and at what time (full harvester to fork traceability). This involves:

- **Setting quality standards for harvesters** - although most deliveries are by boats owned and operated by FAS the company also buys salmon from several other vessels. Harvesters are provided with quality standards (i.e. delicately handled, properly cleaned, bled, flash frozen, straight, with a minimum core temperature of -20°F) and harvesters are paid a premium price if quality standards are met.
- **Tracing product to individual harvesters** - all vessels provide detailed hail of catches and product is segregated at the dock, plant and cold storage facility by vessel and offload batch numbers.
- **Working with supply chain partners** - the company works with state of the art trucking and cold storage facilities which are able to guarantee required temperature regimes and provide data records to verify that required conditions have been met.
- **Providing documentation** - information on product origin and quality standards is communicated to customers on every invoice to support the "Finest at Sea" brand name. High end customers (particularly restaurants) desire this information in order to market the FAS quality and local supply to their clientele.

This business strategy has built a growing and committed clientele for FAS, who are willing to pay premium prices for high quality product. The end result is a value added product, with increased returns to both harvester and processor as well as an educated and satisfied customer base.

3.7 VERIFYING ECO-LABELLING CLAIMS

Traceability systems developed as post-processing traceability tools can be extended to the harvester stage to support eco-labelling initiatives.

Given growing consumer concerns about the ecological impacts associated with seafood harvesting and culture, seafood eco-labelling is on the increase. Eco-labelling (such as dolphin-friendly) is now standard practice around the world and the number of fisheries certified by the Marine Stewardship Council (MSC) is growing every year. British Columbia is no different – currently both the BC salmon and halibut fisheries are undergoing certification. In addition, future salmon certification may be stock specific (as opposed to species specific). These initiatives (bycatch friendly gear types, stock or area specific eco-certification) require traceability to the harvester level in order to verify where and how the product is harvested.

Information from both the harvesters and the processors is needed to support eco-labelling claims, and data management systems need to be put in place to supply ongoing verification of claims. In addition, BC's world leading catch monitoring programs provide the traceability criteria (accurate and verifiable) to support marketing sustainable fishing practices as a BC advantage.⁹

3.8 SUPPORTING FISHERIES MONITORING EFFORTS

Traceability data collection can be integrated with fisheries management data collection to add value to both requirements.

Without exception, more information is being collected about where, when, how and how much fish are being caught and landed in BC. Whilst this is being driven by fisheries resources management and conservation efforts by government regulators and, increasingly, the seafood industry, fisheries monitoring data can also facilitate the process of developing traceability systems for these products in seafood supply chains.

In Japan, a pilot traceability project for farmed fish is integrating data collection elements used by the industry association, the Japan Seawater Fishery Cultivation Association, in the primary production stages of the supply chain, with data elements collected by the Tracefish traceability management system for the post-landing supply chain stages.¹⁰ The overlap between fisheries management data collection and traceability system requirements is an important consideration in BC and is explored in more detail in Section 4.5.

⁹ . GSGislason and Assoc. 2004 BC Seafood Sector and Tidal Water Recreational Fishing: SWOT Assessment. Prepared for BC Min. of Agriculture Food and Fisheries

¹⁰ Hashimoto, T., K. Tanaka, H. Niwa. Trial of farmed fish traceability in Japan, 2004 http://www.ean-int.org/Doc/040318_Hashimoto.pdf

3.9 SUPPORTING ENFORCEMENT EFFORTS

Ensuring that all product moving through the seafood supply chain has been legally harvested is essential for both quality assurance and marketing purposes.

By their very nature, information on product source (harvester, location and time of harvest) is usually lacking for illegally harvested product. This is clearly a health and safety issue for certain seafood products (i.e. bivalves) but also a marketing concern in a sector where quality assurance and sustainable fisheries issues are increasing public concerns.

The implementation of full traceability will benefit enforcement officers by allowing them to use business and product identifiers to determine the origin of products being inspected at a processing plant, cold storage facility, fish store, restaurant, border crossing, airport cargo bay, transport truck and deep sea terminal. Failure of product to have a legitimate business or product identification number (or no number) would allow officers to seize the product being inspected pending further verification and authenticity of the product.

Currently there is no system of traceability with which an enforcement officer can trace back the origin of the product other than through extensive interviews of all individuals who have handled and or come into possession of the seafood product. Further the requirement of fishers, processing plants, cold storage facilities, sellers and buyers and transport companies to keep records of product bought, sold and shipped utilizing product identifiers will allow officers to conduct audits of any of these facilities and or transport companies to verify that product in equals product out (see Appendix B for further detail).

3.10 DIFFERENTIATING BC SEAFOOD AS A GLOBALLY COMPETITIVE BRAND

Integrated, reliable and verifiable traceability systems are a key requirement for branding BC seafood as superior products that are safe to consume, managed sustainably and of superior quality.

BC seafood harvesters and producers are increasingly aware that they are vital partners in supply chains that extend beyond the province's borders. BC seafood is in competition with seafood from South America, New Zealand and China (to name a few) and buying patterns for seafood products are increasingly affected by global factors and trends often out of the control of harvesters and processors.

The BC seafood industry has focused considerable recent effort on identifying key opportunities and reducing industry-wide threats through a provincially led SWOT assessment.¹¹ Key processing and marketing opportunities identified by this assessment focused on obtaining higher value for seafood products by meeting consumer needs through the entire seafood value chain and pursuing quality as the BC advantage. Realising these opportunities will assist in

¹¹ GSGislason and Assoc. 2004 BC Seafood Sector and Tidal Water Recreational Fishing: SWOT Assessment. Prepared for BC Min. of Agriculture Food and Fisheries

differentiating BC seafood in an ever competitive, risk averse and discerning global market. Traceability systems will be required to support these branding initiatives.

OPPORTUNITIES FOR TRACEABILITY TO MEET STRATEGIC OBJECTIVES FOR THE BC SEAFOOD SECTOR

In 2003 the Province of British Columbia commissioned a major review of the BC seafood sector, to assess strengths, weaknesses, opportunities and threats (a so-called SWOT analysis). This study was conducted by GSGislason and Associates Ltd. and is available on the Ministry of Agriculture, Food and Fisheries website (http://www.agf.gov.bc.ca/fisheries/studies_rpts.htm).

The report makes five key recommendations with respect to seafood harvesting opportunities

1. Reform the Capture Salmon Fishery
2. Improve Security of Tenure
3. Improve Fish Quality
4. Enhance Fish Quality with Better Traceability
5. Market Sustainable Fishing Practices

Improved water to buyer traceability will assist in meeting four of these recommendations, improving security of tenure being the exception. Improving quality and value in the salmon fishery requires slowing of the harvest rate, improved on-board handling of fish and the ability to traceback product from processor to harvester in order to meet quality standards. Traceability permits tracking of quality standards through the supply chain, supporting price initiatives to meet high end market needs. In addition, traceability provides the verification and transparency necessary to market sustainable fishing practices to an increasingly vigilant and informed consumer base.

