

## SECTION 3

### PRACTICAL IMPLICATIONS of FISH TRACEABILITY

Traceability systems have been present in aquaculture for a long time, either for sales purposes or for tracking family histories of various strains of fish. The development of quality schemes over the last number of years, such as the Irish Quality Salmon, Scottish Quality Salmon, Label Rouge and the Aquaculture Certification Council's Shrimp project have assisted in the formalisation of what was often an ad-hoc system of data collection.

There are two parts of any traceability system,

#### **Tracking:**

This is to follow the route taken from the point of origin to the final destination.

#### **Tracing:**

This is used to identify the origin of a product, or product lot, covering anywhere between the point of consumption all the way back to the first point in the chain.

Fig. 1 shows a general stock / traceability flow chart system through a Framed Salmon Production Chain, but the general principles can be applied to most aquaculture operations.

### **Traceability in the Finfish Sector:**

In the finfish sector, businesses must be able to trace the product and ice one step forward and one step back throughout the supply chain, starting with their broodstock and their origin, tracking the eggs and juvenile fish through the hatchery phase and all the way through the on-growing stage before harvest.

These traceability systems must not just be able to show the movements of each individual fish, whether it is from one pond or cage to another or from freshwater to seawater, but also the treatment history of that fish and eliminate the potential for these fish to contain any residues.

#### **Feed**

To comply with the new EU legislation, EU 178/2002, all food and animal feed (which includes food producing animals and animal feed ingredients) must be traceable at all stages of production, processing and distribution . The feed manufacture must have a system in place to keep track not only of batches produced but the raw materials that went into the feed.

This has caused some problems for farms using moist diets, where the feed might be produced fresh each day, and the origin of the fish used in the diet must be stated.

Some Feed companies have devised solutions based on their own experiences. For example, Nutreco, in conjunction with BASF has developed a computerised tracing system named TELOP (Technology Development for Profitable Fish farming) which documents all ingredients and processing steps in the food production chain. It will record where the salmon was processed, the animal feed it received as well as any feed additives.

### **Farms**

Finfish farms must maintain production records in either a paper or electronic format. In practical terms, for a finfish farmer, it means that the record system used must be simple enough to be accurately maintained each day and yet sophisticated enough to provide a full history of the stock on the day of harvest so that a buyer or legislator is satisfied with the information provided. The farm must maintain a detailed, coherent database from which to extract data.

The system may account for movement or transfer of fish between cages. Any system must also be robust enough to allow cross-referencing with different records such as medication records, feed types, supplements, vaccination details and cage transfers which must be accurate and accessible.

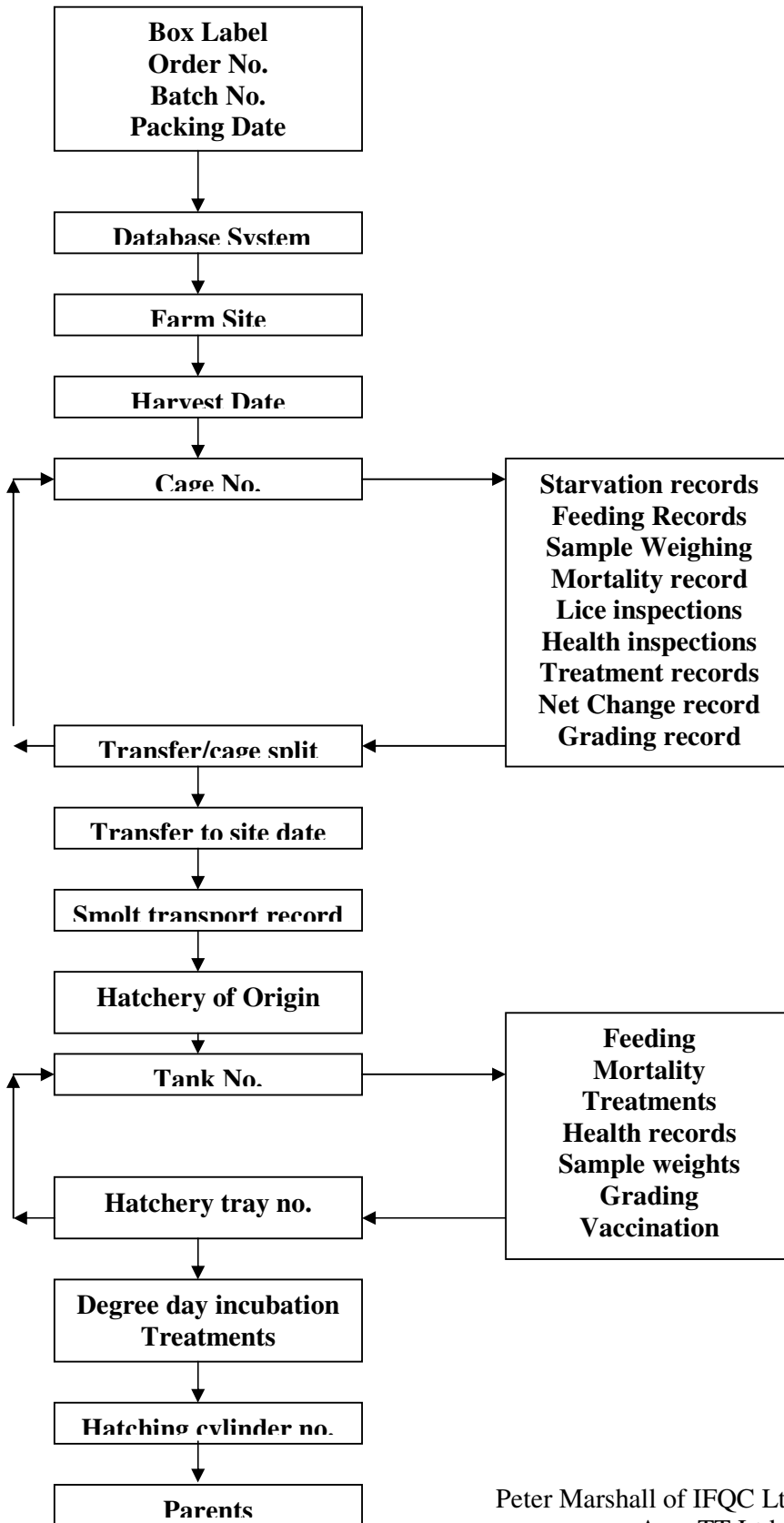
### **Processing / Packing Operations:**

Finfish farms either pack or process their fish in their own factory or through agreement with another company.

In Europe, these premises must meet the requirements of EU Directive 91/493. Once a premise has been inspected by a representative of the competent authority in that country, and it meets the necessary requirements, it is given a unique approval number which according to the legislation, must appear on any labels from that plant. This allows the product to be traced back to the processing site. The competent authority in each state maintains the list of approved premises in that country.

Information about the premises can be viewed by the public, or you can request that each time the list is up-dated by the competent authority, that it is e-mailed or forwarded on to you.

**Fig. 1: Farmed Salmon Stock Traceability Flow**



## **Traceability in the Shellfish Sector:**

Traceability is just as important in the shellfish industry, whether the seed stock come from a hatchery or from wild seed.

### **Hatcheries / Spat Collection**

Because of the increasing volumes of wild spat collected by either dredging or lines, an increasing number of EU countries are requiring that logbooks are maintained showing the origin and amount of spat collected and where and how it is relayed.

Shellfish hatcheries must maintain detailed breeding records for all of their stock and this information must be made available to purchasers.

In both cases, they will be eventually be transferred to an on-growing situation, and one of the most important factors here is that at harvest, the shellfish are safe to eat. This involves the shellfish farmer maintaining a system which ensures that the requirements of any biotoxin testing regime are met, and that he/she has verified that the shellfish can be harvested. This information, in turn, must be accurately passed on to the final processor. Shellfish can only be produced in Europe in waters classified under the directive EU 91/492.

### **Shell Fish Growers**

Shellfish can only be harvested from waters classified under EU 91/492. Shellfish growers are registered 'Gatherers'. All shellfish dispatched by a registered 'Gatherer' must be accompanied by a 'Gatherer's Certificate' / Harvest Record' which provides information on the consignments origin, grower details and where the consignment is going to. Details of the biotoxin status are also included on this document.

### **Shellfish depuration / dispatch centres:**

Depuration of shellfish involves placing them in suitable conditions of clean seawater for a period of time sufficient for pathogens to be purged by the normal activity of the shellfish. The water used is often treated by ultraviolet light to make the water as pure as possible.

All these dispatch centres have to be approved under the EU Directive EU 91/492 issued with an approval number. This number must be displayed on all products leaving the dispatch centre. This allows the product to be traced back to the point of origin.

As with finfish, the competent authority in each state maintains the list of approved premises in that country.

### **Traceability in the Transport /Distribution Sector**

Whether using ones own lorries or using transport contractors, companies must maintain records of what is being transported, the destination, the quantities delivered and the environmental conditions of a particular lorry at a particular time.

Systems and technology have been developed to allow real time tracing of product during distribution (See RFID section)

### **Traceability in the Wild Fisheries Sector**

Traceability is also a requirement in the Wild Fisheries Sector. Companies must trace the product one step forward and one step back through the supply chain.

An example of how traceability systems can be introduced to the capture fishery sector is BIM'S Wild Salmon Quality Scheme. Such a development even just over 5 years ago would have been considered a remote possibility. Every salmon that meets the criteria for the scheme is given an individual swing tag, with a unique reference number. (See Fig 2)

**Fig: 2 Certified Wild Irish Salmon and Tag**





Front of Swing tag



Back of Swing tag

This information is recorded in the fisherman's logbook and passed on to the processor. When the fish has been bought by the final consumer, each fish can be traced on the BIM website, using the information on the swing tag, and the actual boat that caught the fish and its location will be displayed.

### **Labelling and Traceability for Fishery and Aquaculture Products:**

In Europe, the labelling and packaging requirements for fishery and aquaculture products and the traceability of these is covered by Council Regulation No. 104/2000 and Commission Regulation No. 2065/2001.

The label must allow for the tracing of each batch one step back and should include the:

- The identity of the Member State
- Name of the Farm or Selling Company
- The Durability
- Treatment e.g. Gutted / Steaks
- Number of fish if Appropriate
- Size (weight)
- Date of Packing
- An official approval number
- Harvest site or Fish Farm

Bar coding is a technology that has been used extensively in the aquaculture sector to record information about the product (see Bar code Section)