

## PARTICULARITIES AND MANAGEMENT OF THE DISTRIBUTION CHAIN FOR FISH AND FISHERY PRODUCTS

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### Abstract

*The total quality principles implementation contributes to the improving in meeting the consumer needs, essential reduction of costs and increasing sales. The total quality is a concept that assures the total satisfaction of clients on the entire distribution chain, including all the actors in this chain. The aquaculture and fisheries are very diverse sectors which use different breeding and fishing technologies and provide a wide variety of specific products. This induces a real complexity of the supply and distribution chain for fish and fishery products, including the links from the production point (fishery or farm) to the final consumer. The components of the distribution chain differ with the geographic areas, type of farms, transportation, information on the fishery market and management systems. Implementing the total food quality system for fishery products involves the quality specification in all marketing stages for all products, along the entire distribution chain. The present work was focused on identifying the distribution chain for fish and fishery products with the identification of the specificity of this type of chain from farm to end consumer, which is the first step in the implementation of total quality concept in aquaculture, with all the benefits that come with it.*

**Key words:** consumer, food, quality, traceability.

### INTRODUCTION

Traceability is a concept relating to all products and all types of supply chain. Nowadays, in an economic system in which companies compete against each other in an environment widely founded on customer satisfaction, traceability is an indispensable instrument in obtaining the market consensus. Direct benefits are supply chain optimization, product safety, and market advantages (marketing advantages/competitive business advantages). However, the EU Directive 178/2002 (European Parliament, 2002) has placed responsibility for ensuring product safety and quality on individual producers, processors and retailers. Moreover, traceability for control of food safety has been singled out as an area where more surveillance and transparency is needed.

Due to consumers interest, including for fishery products, focusing on high quality products, in respect with the environment, with sanitary safe, a good and transparent traceability, the European fishery industry must adapt to these requirements in order to satisfy the consumers' expectations. The traceability system is considered a tool to guarantee safety in fish products and improve the supply chain transparency (Nicolae et al., 2014).

Handling after harvesting, processing of fish and fish products transportation must be done with respect of food safety conditions. Maintaining the fish nutritional value, preserving its benefits and composition, as well as avoiding fish spoilage or emergence of diseases is vital (Metaxa, 2003).

The traditional fishery supply chain is a conventional and long chain, characterized by complex combinations of upstream and

downstream elements. Most aquatic organisms' commercialization takes place through the traditional model - from farms and fishing points, processors, through wholesale markets, then retailer to consumers. Also, another way of commercialization is from farm or fishing points to wholesalers directly, to intermediaries who charge a commission to distribute the aquatic organisms (fish, mollusk, crustacean, frog etc.) to wholesalers and directly to consumers. Rabade and Alfaro (2006) analyzed the influence of the relationship between supplier and consumer on safety traceability, and then built an evaluation model on this basis. Resende (2007) analyzed the excitement mechanism of the traceability system by building a "supplier-consumer" model.

## MATERIALS AND METHODS

Product traceability and its components represent a major challenge for food industry. In practice, the traceability systems are written registrations defined by procedures that show a pathway of a product or ingredients unit (batch) from the provider (one or more) through all particular stages of processing and combining into new resulted products (Banu et al., 2007).

These systems follow the pathway from the intermediate users to the final ones, the consumer, through all the supply chain in order to provide safe foods, with clear and transparent traceability.

This work identifies the distribution chain of the fishery products, as it is done at international level. The information was found in the specialized literature, as well as framework documents and analysis made by European Union institutions. The results of a case study made on the distribution chain for fishery products in Romania are also cited.

## RESULTS AND DISCUSSIONS

The distribution chain in the fishery sector consists in the entire set of processes and activities necessary for producing and delivering on the target market the fish and fishery products.

The term "produce" covers growing, harvesting, transforming and processing.

The smooth functioning of the value chain requires not only the factors of production and technology, but also the efficient transport, market information systems and management.

(Figure 1).

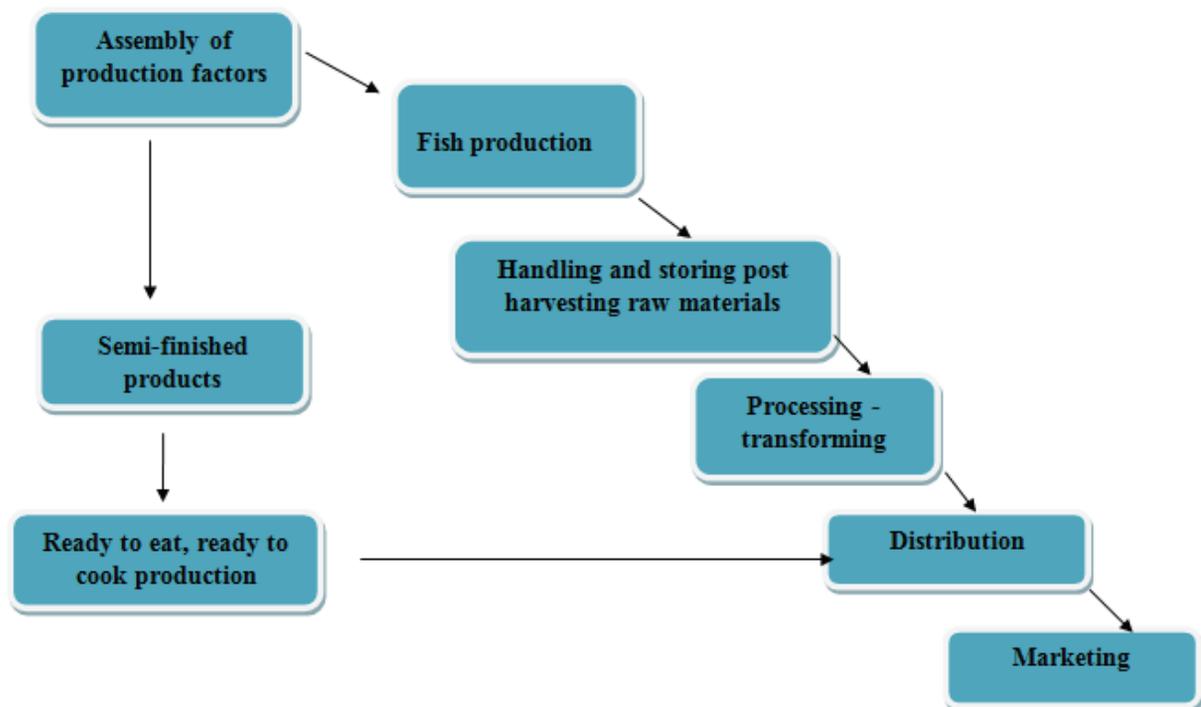


Figure 1. Key links in fish and fishery product supply chain (De Silva, 2010)

The concept of value of the distribution chain (Figure 2) was introduced in 1985 by Michael Porter, who highlighted that the activities within the organisation add value to the service and products that the organisation produces, and all these activities should be run at optimum level if the organisation is to gain any real competitive advantage

If they are run efficiently, the value obtained should exceed the costs of running them i.e. customers should return to the organisation and transact freely and willingly.

Distribution value chains with added value are interested on what market would pay for a good or a service offered for selling. Moreover, market considerations differ from one country to another and have a strong link to food habits and consumption pattern of humans (De Silva, 2010). The main objective of the management of a distribution value chain is to grow the gross returns and to maintain them for a longer period of time. The distribution chains are interested in the reduction of the links' number

and blockages, costs and market times (Banu et al., 2008).

A good distribution chain is one that is developing and transforming into a value distribution chain. The distribution chain for fish and fishery products includes all the links from the production (fishing or farm place, in aquaculture) to the end consumer. This contains an important set of markets and management systems.

A management system is defined as a link between the producer/provider and the consumer/user and also the mechanisms, the flows, inter-changes, service, operational, which determine relations among the producers' gains and the product itself.

The flows into a good and operational trade system include information on prices, market status, trends, consumers preferences, but also on physical flows of product or/and money, credits or property rights (Codex Committee on Food Import and Export Inspection and Certification systems, 2002).

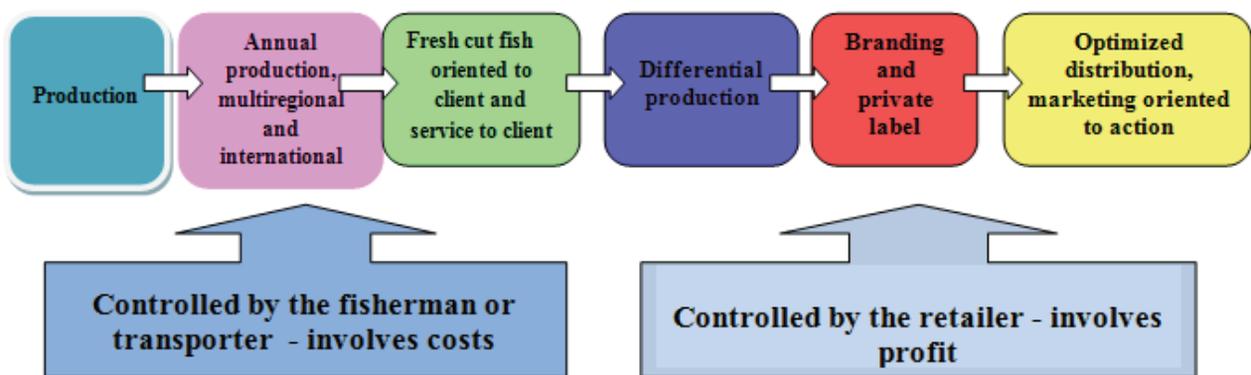


Figure 2. The emergence of the value chains in the fish produces industry (adapted from De Silva, 2010)

As is the case of other food products, fish and fishery products must follow the certain distribution channels to reach the consumers. But, what makes fish and fishery products to be as special as they are is their vulnerability due to the reduced shelf-life. This involves new essential requests related to handling, quality, temperature control or tight timing that must be respected.

Traditionally, in most countries, the distribution channels are multileveled, each level having its own part of tasks and ways of working:

- importers;

- distributors;
- en-gross sellers and retailers;
- brokers and food brokers.

In order to assure continuity in supplying the distribution chain and its correlation with consumers demands, aquaculture has become very important by covering the gap between offer and demand (Roheim, 2008).

The distribution chain for oceanic and marine catches has only a few links: the producer, the en-gross storage, dealers, intermediates, retailers, processors and consumers.

The fishermen can be amateur or professional. Form the industry point of view, the interest is

focused on some categories of fish, economically important species, so the role of amateur fishermen is restricted.

Fish and fishery product quality must be guaranteed by standards adoption and legal regulations following. Processors play a very important role in national and international chains by selling further to the other section in the chain.

Distributors and sellers represent the next link in the distribution chain. They store the products and sell them afterwards to retailers, processing companies or restaurants. They have been identified three types of distributors: specialized in seafood, full-line distributors (which distribute a wide range of products and have big national distribution networks) and sellers with environmental sustainability.

Selling fish directly from the amateur fishermen is reduced in large stores and supermarkets, where the supplying is made directly from the importer, complying with the hygiene and traceability regulations.

Recently, increased competition and logistics improvements have shortened the distribution chains in many countries, in which, as an example, the en-gross seller imports/buys the product directly from the retail chain, through its external operator.

This is especially the case of frozen products, canned products, but also the case of fresh, refrigerated fish and fishery products distribution chain. The absence of fish or seafoods branding may determine the replacement of one product or a supplier (which is not always the same). In fact, enhancing the international trade with fish and fishery products, as well as the increasing and extending of the free trade markets determined the proliferation of small operators or en-gross storages.

In most countries, the big en-gross storages with national distribution have narrowed their geographic covering. This trend, combined with the policies of supermarket chains to buy directly from the producers (especially for aquaculture products) lead to the global decreasing importance of the small en-gross sellers, which have become weaker. Meanwhile, on the majority of markets, the role of the agent has suffered changes. Better logistics, improved communications have sped

up the direct contact between the supplier and importer and have reduced the importance and the role of the agent. On the other hand, the time pressure, increased specialization, services externalization have created new roles for agents wanting to find new products or new markets. Various international studies have documented the increasing power exerted by retail chains on food distribution chains (Ardjosoediro et al., 2008). The positive general effects of modern retail channels were reflected in smaller prices for final consumers, better accessibility and commodities, but with a big negative competitive impact on small retailers and supplier.

In the fish and fishery products markets for the European Union and United States of America, the supermarket chains have played an important role in promoting and quantitative selling of aquaculture products like salmon, sea bass, gilthead seabream, catfish.

The success formula of retail competitive distribution chain must contain a balanced mix of competitive price, big amount of fresh products at high quality standards obtained by strict specifications, modern logistics and efficient control. The results are confirmed by the market studies in which consumers are showing their trust in a certain brand or supermarket (FAO, 2002).

The modernization of the food fishery products distribution channels has become an integral part of the global trend and a symbol for globalization in the fishery sector. Companies in this filed must arrange marketing strategies adapted to consumers needs and also considering competition.

The distribution chain for fish and fishery products may involve an important series link between the fisherman/farmer and the final consumer. The majority of fishery products are sold internationally, especially the species with high added value (tuna and scallops). There are four possible routes through which harvested fish can reach the consumer:

- a) exported directly after harvesting/fishing;
- b) exported after a primary processing;
- c) exported after primary and secondary processing;
- d) exported after harvesting/fishing in a third country where it is processed and returns as a finished product in the country of origin.

Maintaining constant temperature is the key factor for fish and fishery product transportation. All persons/links involved in perishable products' transport and handling are responsible for maintaining the cold chain link continuous (uninterrupted). The transporting of perishable goods on far distance must be done following perfect procedures after previous planning for efficient and safe distribution of food goods.

Distributors and transporters must be capable to work with frozen, refrigerated products, smell issuing products or food that produce ethylene or sensitive to ethylene products.

Many countries do not have this kind of facilities and the losses after the harvesting/fishing are really significant.

Appropriate decisions must be taken as related to storing facilities, trucks design and capacities, as well as the supplying pathways to fulfil the food safety and quality (European Commission, 2004).

Maintaining the cold chain is an essential factor for minimising the losses of products by deterioration and exceeding the validity period of products. Many of the potential problems that may occur in the distribution chain can be avoided by correct understanding and management of the critical issues of handling and carefully planning of each charge.

Depending of the production process, the traceability chain of fish and fishery products may be short or long, which produce changes in the status of all actors involved.

Labelling and certification are important parameters in product strategy, especially for intercommunity trade or export. Furthermore, following the legal reglementations of the importing countries means the assuming of the voluntary certification for fish and fishery labels in order to reach certain groups of consumers and to obtain competitive advantages. For example, many producers in the fields of fishery industry have introduced voluntary certification systems as ISO 9000 standards just to increase the quality level of products and procedures, but also to assure that they will be preferred by importers, retailers or consumers.

This factor has become extremely efficient following the increased importance of

traceability and food safety systems for importers, retailers or their suppliers.

The European Union has introduced new labelling regulations for fishery products which require labelling of the way of production (capture or aquaculture), the fisheries areas, production country, as well as Latin (scientific) name of the fish species (INCDM, 2014).

Producers focused on the quality and fished products managed to sell their products few times more expensively than those focused on aquaculture. In the meantime, the certified aquaculture producers with high quality label (red label) obtained a better price compared to the uncertified ones.

On the other hand, the companies can choose to specify some mentions like "organic product", "free trade", "dolphin-safe tuna", and labels known as eco-labels.

## CONCLUSIONS

The development strategy for fishery at European and national level aims to enhance and promote competitiveness and sector diversity, issues that can be fulfilled by research and aquaculture technology development.

Implementing the principles of quality contributes to the increasing of consumer needs satisfaction, increasing the selling volume and essential reduction of costs.

The entire sets of processes and activities necessary to produce and deliver the final product to the fish and fishery market is reflected in the distribution chain, whose good functioning depends not only on the production factors, but also on the efficient transportation, market information, and all management systems for the links involved in fishery area of production and capitalization.

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