

# **TO A BALANCE BETWEEN FISHING ACTIVITIES AND FISH FARMING FOR FOOD SECURITY: A 20 YEARS RETROSPECTIVE OF SEAFOOD PRODUCTION EVOLUTION**

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Abstract:

The last FAO report on The State of World Fisheries states showed that the sea food consumption offer evolved from 13.2 kg per capita in 1999 to 17.2 kg per capita in 2009. Thus, the world marine resources management and the sea food market supply take an important place in global food safety. However, since it relies on two different business sectors using marine resources, the seafood market is very specific.

On the first hand, the fishing activities, which supply more than 2/3 of seafood markets with approximately 90 million tons landing in 2010, is the first important business sector implied in the seafood market. However, the statistics of the global productions show that these volumes tend to stabilize for several years. Growing fish stock over-exploitation, fishing quota, moratoriums and limited biological production capacity explain, at least partially, this stabilization of the volumes produced by the fishing activities. The current reports on the global marine resources state are more and more worrying, and, certain studies mention possible disappearance of stocks exploited during this century.

On the other hand, in response to the seafood demand increase, and to growing marine resources scarcity, fish farming was strongly developed since the 80s. These activities brought an industrial solution to the supply markets. If, at the beginning of the 1950s the volumes produced by fish farming were only a few million tons, they represent today approximately 50 million tons i.e. about 30 % of all the seafood market supplies. This exponential growth of the fish farming over fishing activities indicates that this activity should play a major role in the participation to the global food safety in the next decades. While the landings stemming from the fishing activities improved by about 1% every year on average between 1985 and 2000s, the fish farming progressed, over the same period, by about 9 %.

So, Fish farming is an example of food processing system which is known to be developed in connection with the international exchanges globalization. On the contrary to the fishing productions which are strongly subjected to the hazards of production, and to the environment evolution, fish farming allows a perfect control of the whole supply chain.

However, fish farming cannot be yet considered as an alternative to fishing activities; nor a solution of the problem of the rarefaction of the world marine resources. Indeed, if fish farming does not draw directly from the oceans, this activity is however an important consumer of marine resources because of the farm species food needs represented by the fishmeal and fish oil. So, near a third of the captured marine species are not directly intended to human consumption, but serve to furnish the fishmeal and fish oil industries.

In 2000, the works of Naylor, brought to light the narrow relation between the development of fish farming and its impacts on the environment. As far as the resources

intended to the fish farming development undergo a more and more worrying rarefaction, it seems incompatible with the objectives of sustainable sea food production to guarantee the food safety?

Over the next decades, the sustainable levels of exploitation of marine resources intended to human consumption are going to constitute a great issue for the world population. However, the evolution of the seafood production is conditioned by two business sectors which present very specific characteristics one to another: a decline of fishing activities and fast-growing fish farming.

These two sectors are nevertheless not in competition, but their developments are connected to each other. The issue of a sustainable development of marine resources on the one hand and of seafood market constant supply on the other hand is thus to allow their simultaneous development. This paper makes the inventory of the evolution of both sectors which supply seafood markets since the 90s. Through the international awareness of the resources sustainable exploitation and the Ecosystem Approach, the constraints and the stakes in these two activities will be approached in a context of future food safety.