

CASE STUDIES ON AQUACULTURE SOCIAL ACCEPTABILITY

2

A CASE STUDY OF THE SALMON AQUACULTURE INDUSTRY IN CHILE

In Chile, aquaculture is almost synonymous with salmon farming. Salmonid production represents 94% of exports from the aquaculture sector, concentrated in three species: Atlantic salmon (67.1%), Pacific or coho salmon (15.6%) and rainbow trout (9.2%). During the last decade, the production of other species has also emerged in an important way, such as algae and mollusks. The Chilean mussel or mussel has an important participation in terms of production (27.8%), but very low in terms of exported value (4.1%). Unlike the latter, salmon production is almost exclusively export-oriented. The extensive coastline of Chile and the abundance of fjords with adequate temperatures and hydrographic conditions in the southern part of the country represent important natural comparative advantages for salmon farming in Chile (Marine Harvest, 2018). But the industry was not born from the free action of the market, but was the result of the significant and successful effort of development and transfer of knowledge and technological capabilities carried out by the State, in conjunction with various semi-public institutions and public-private alliances, and continuous international cooperation since the 1970s and, in particular, the 1980s. These initiatives allowed the subsequent entry of private actors of national and foreign origin, who, taking advantage of the accumulated stock of knowledge and contributing new technologies, gave a strong stimulus to the growth of the sector.

The emergence and the development of the Chilean salmon industry demonstrate the important role of technology transfer in industrial development. Technology transfer has enabled Chile to build a globally competitive and innovative salmon industry over the last two decades. The industry has become one of Chile's main export sectors and a significant contributor to regional development. Today, Chile is the second largest salmon producer in the world and develops technology for the production of other fish species.

The development of the industry was a painstaking process and success was not assured. Chile undertook several trials, including attempts to stock rivers and lakes, spanning several decades in order to master fish-farming technologies. It solicited technical support from several international institutions with experience in fish breeding and farming and used its national institutions to acquire, assimilate, develop and diffuse fish farming technologies. Some of the early firms were created by public institutions and researchers that had accumulated some basic operational knowledge and skills in fish farming.



CASE STUDIES ON AQUACULTURE SOCIAL ACCEPTABILITY



The close cooperation between government agencies and the salmon producers played a vital role in the growth of the industry, especially in the development of licensing regulations, sanitary standards and supporting research and development activities (R&D). Similarly, R&D institutions have worked closely with the national fishing agency, the National Commission for Science and Technology and the salmon industry.

The Chilean Salmon Industry Association A.G. (SalmonChile) and the Technological Institute of Salmon (Intesal), which is the technical arm of the union, recently joined the international organization Global Aquaculture Alliance (GAA). "This - according to what was assured by SalmonChile - thanks to the work and efforts made in matters of sustainability and social responsibility that allowed the union and the more than 50 small, medium and large companies that make it up to join this network that promotes responsible aquaculture".

Oceanic aquaculture will reduce conflicts with other users, increase sustainability levels and gain higher levels of social acceptance, given that its installation will only be in sectors that do not generate conflicts with other users and that one-way currents will reduce the prevalence of diseases. However, the difficulties in accessing the maritime resource are compounded by the growing rejection by the community of the operation and expansion of salmon farming in the territory. Communities have blocked the operation of companies in certain places, affecting production possibilities and the level of uncertainty they face. In the medium to long term, a bad relationship with the community, and with society in general, can translate into regulatory and legal changes that significantly impede the sector's action. Some examples of this are the unsuccessful attempts to relocate, the constant attempts to stop the expansion of the sector by different political and social groups or the difficulty in making the legal changes that allow the development of ocean aquaculture. For this reason, an alternative to the dilemma of how to grow is to regain and maintain trust and the social license to operate. A last relevant edge corresponds to the relationship with indigenous communities, given the special bond that many of these have with the territory. The so-called Lafkenche Law, in particular, can have a significant impact on the activity of the industry. The current applications for Maritime Coastal Spaces of Indigenous Peoples (ECMPO) overlap with approximately 70% of the total aquaculture production area in Chile; and, currently, 41 aquaculture concessions in a state of renewal have been suspended since 2014 due to the preference given to the request of ECMPOs. The potential for conflict with indigenous communities can further damage the image and approval of the sector.

CASE STUDIES ON AQUACULTURE SOCIAL ACCEPTABILITY



The boom in the industry has meant the occupation of important coastal areas with cage rafts for salmon farming, which have tended to diminish the attractiveness of the environment. The productive work of this industry implies truck traffic, death of native species, waste of blood water, aesthetically inappropriate facilities, change in the transparency of the waters, all of which is openly an aesthetic devaluation of the landscape.

The installation of cage rafts in the coastal areas of southern Chile has been incorporated as a new element to the landscape, which has contributed to changing the historical image of these places, especially the Chiloe Archipelago. According to the officials of the salmon industry, this has been a contribution to the landscape and tourism as they have attracted more visitors. However, this version - clearly intentional - should be supported in a technical, documented and impartial way, since a contrary opinion is regularly expressed by locals and tourists, who consider the presence of cage rafts as a visual contamination, due to the profound transformation of the landscape they represent. Although the latter is not documented either, this rejection is as obvious as that manifested by any other type of contamination that alters the lifestyle and original landscape of sites affected by severe environmental impacts. On the other hand, the locals, who traditionally developed a mixture between small agriculture and artisanal fishing, have seen their extractive activity of coastal marine resources curtailed by the granting of aquaculture concessions that have reduced the surface of the coastal zone suitable for fishing operations.

To date, there is no study or antecedent that measures, quantifies and relates the effect of cage rafts on the landscape and on tourism, probably because the development of this last sector is subject to multiple factors, especially economic (exchange rate, general economic situation of the country, situation of neighboring countries, etc.), and not only environmental.

As a way to mitigate the suspiciousness of the general public about farmed salmon and to promote aquaculture salmon, the Chilean salmon farming industry organizes several social and cultural events on a routine basis. The salmon national festival is an event that, year after year, brings together fishermen from all over the country to participate in the deep-sea fishing contest that is the main attraction of the celebration. Every year the festival is a sporting event that has become a tourist attraction over the years.

Furthermore, there are a lot of gastronomic events in which farmed salmon is the key dish, as a way to promote the product and help to increase the social acceptability of the species. This kind of events attract a lot of tourists and are beneficial for the country's economy

CASE STUDIES ON AQUACULTURE SOCIAL ACCEPTABILITY



INDICATORS

EVENT ORGANIZATION TO WORK ON THE SOCIAL ACCEPTABILITY OF FARMED SALMON, BY PROMOTING GASTRONOMIC AND CULTURAL EVENTS.

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