

THE FUTURE OF CHILE'S SALMON FARMING INDUSTRY

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A salmon farm near Puerto Montt, Region X
Photo by Benjamin Witte

(Ed note: This overview of some of the environmental problems now facing Chile's booming salmon farm industry was written by Bas Bolman of the Wageningen University, The Netherlands. Email: bcbolman@hotmail.com) Chile's salmon sector has developed very fast since commercial cultivation started. In just 25 years, this sector has grown more than 3500 percent and now offers employment to more than 50,000 people. The sector generates approximately US\$2 billion each year and is the fifth largest business sector in the country. Internationally, Chile is the second largest producer of salmon, just after Norway.

Still, this success also causes new challenges: its growing impact on the environment and disputes with other users of the coastal zone.

The story of commercial salmon cultivation in Chile begins in the early 1980s, with Fundación Chile acting as a central player coordinated cooperation between public and private sector organizations. Fundación Chile started a demonstration company which was shown to interested businesspeople, proving that salmon cultivation was technically possible. Fundación Chile made these people aware of the opportunities and huge potential that the new salmon sector had. Fundación Chile's activities helped reduced risk for investors who first engaged in the salmon cultivation business. In the exploitation phase of the 1990s, Fundación Chile gradually became a facilitator, while, at the same time, the producers association SalmonChile took over the coordinating role in the new salmon cluster. In short, one of the key explanations for the fast development of this sector is the flexible cooperation between public and private parties, characterized by strategically shifting roles of the coordinating organizations.

Another explanation for the fast development of the salmon sector has to do with zoning programs and the introduction of aquaculture concessions, as introduced through the General Law on Fisheries and Aquaculture of 1991.

The zoning program makes clear which parts of the coastal areas are accessible for the development of aquaculture activities. To use these locations, a legal permission must be obtained in the form of an aquaculture concession. This implies a form of privatization of the coastal zone, through which a kind of scarcity is created. One of the consequences of this scarcity is that a certain value is added to concessions. The more people use these locations, the scarcer they become and the higher the value of concessions. This also means that those who have a concession will be involved in the further development of the sector, because this will increase the value of their concessions. In other words, zoning and concessions were important because they attracted new investments and greater effort, which gave a strong push in the development of the salmon sector.

But the expansion of the salmon sector in the Regions X, XI and XII also caused a variety of new challenges. Two or three of these challenges are most often mentioned in the media.

The first challenge is subject to a fierce debate and relates to the ecological impact of salmon cultivation due to the usage of antibiotics and other chemicals. The second challenge relates to disputes arising due to the competition for space. Traditional fishermen are complaining that they are not allowed to access certain parts of the coastal area anymore because salmon concessions have been granted in these areas. This is also the case with the booming tourist sector, which involves many new users of the coastal areas.

It is clear that these issues need to be solved, but the question is how. The solution might be found through three interrelated options.

The first step is the creation of a General Zoning Law. Currently, only the aquaculture sector can use legally defined zones; other sectors are not provided with specific zones. This is the core of most of the disputes in relation to the usage of the coastal zone. As history shows, the salmon sector's development was hastened because there were clear rules regarding the use of space. A General Zoning Law will provide a clear legal scope for all involved sectors that use the coastal zone. This, too, would be an incentive for these sectors to utilize the full potential of their development.

The second step is to start cultivating in the open ocean. One reason for the severe ecological impact of salmon cultivation relates to the fact that most salmon farms are located in bays. As a consequence, residues of antibiotics and chemicals cannot be flushed out. In the open ocean chemicals can be flushed out, thus greatly reducing the ecological impact. This form of cultivation has the potential of being more profitable due to the fact that greater amounts of salmon

can be cultivated per hectare. Moreover, in the open ocean, the salmon sector competes to a far lesser extent with other sectors in relation to the usage of space.

Still, for open ocean cultivation, new cage technologies need to be developed. As the past has shown, zoning combined with concessions can attract new investments and new efforts by stakeholders. Thus, the new General Zoning Law should include the zonification of the 1-7 mile zone of the open ocean, and the granting of new concessions. This will result in a crucial push to invest in new cage technologies, which opens the doors to a further and more sustainable development of the salmon sector.

The third step is the establishment of new public-private partnerships in order to design and implement the General Zoning Law and to focus on the zoning of the open ocean. As has been explained, the salmon sector's development would not have been possible without flexible and dynamic cooperation between the public and private sectors. Moreover, history shows that for this to happen, a central key player is needed. The producers association SalmonChile would be a highly suitable organization to take this new responsibility and coordinate these new partnerships.

It has become clear now that there is certainly a long-term future for the salmon sector in Chile. But this future crucially depends on the capability of both public and private parties to reduce the impact on the environment, in combination with fewer disputes among different users of the coastal zone. Carrying out the three plans seems to be inevitable to achieve this.

Further reading:

Bolman, B.C. (2007). Explaining the development of the salmon sector in Chile. Thesis for the chair group Law and Policy, Wageningen University.

Fundación Chile (2007). The 30 years of Fundación Chile. Santiago: Fundación Chile.

Iizuka, M. (2004). Organizational capability and export performance: the salmon industry in Chile. Paper presented at the DRUID Winter Conference, 22-24 January 2004.

Maggi Campos, C. (2004). The salmon farming and processing cluster in Southern Chile. Inter-American Development Bank, report WP16/2004.

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