

The possible land footprint in modern aquaculture – The case of Atlantic salmon (*Salmo salar*)

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Abstract

A fast-growing world population combined with an increasing demand for meat per capita makes the question of sustainable sources of high protein food one of the biggest of our time. This study is assessing the possible land footprint of the Atlantic salmon both for Norway and globally. To do so, feeding data provided by the three biggest Norwegian salmon producing companies and production data provided by the FAO was used. This study meant to place itself between studies performing Life Cycle Assessments and research conducting feeding experiments, searching for even more efficient marine ingredient-omitting ways to produce Atlantic salmon. The fast transition of feeding practices over the last ten years lead to an ever so changing land footprint, and that is why studies conducting it rapidly become outdated and are recommended to be renewed on a steady basis.

In the first step, plant-based feed components were assigned to their total share in tonnes. Secondly, primary equivalents based on caloric content were assessed and then tried to be linked to possible countries of origin through bilateral trading data. In the last step, yield averages of originating countries were applied to investigate the land footprint of the plant-based components of the Atlantic salmon's feed, first for Norway, then globally. Results could only be validated by one study, conducted a similar approach in 2011 finding similar land requirements. With a land footprint of 3.7 m²/kg live salmon based on data from 2015, it is a relatively low impact product compared to other sources of meat. Nevertheless, incomplete data availability for other salmon producing countries created high uncertainties regarding the land footprint of the global salmon industry.



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