

Title: **Technical Efficiency in Danish Fresh Water Trout Farms: Taking Pollution into Account**

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Abstract: Production in the aquaculture sector is often associated with pollution and as being harmful to the environment. Trying to change that reputation and stimulate growth, a new more environmental friendly method of production has been developed and introduced in Danish fresh water trout farms. The purpose of this paper is to analyze whether the new more environmental friendly farms in Denmark are as technical efficient as traditional farms taking into account the socio-economic cost of pollution. Earlier results have shown that the new environmental friendly production method is just as technical efficient as the one used in traditional farms if pollution is not taken into account. In this paper, pollution is taken into account as an input in an input oriented Data Envelopment Analysis (DEA) model, which is used to estimate technical efficiency. A Tobit regression model is used in a second stage analysis. The policy implications are discussed in relation to ensure that the best and most environmental friendly producers are the ones producing. The option of supporting a shift in favor of the best environmental friendly producers, through changing the existing regulation from input based feed quotas to output based nitrogen quotas are examined. The results show that production can be increased without raising the existing level of pollution, or pollution could be reduced if production remains at the same level as today, without reducing technical efficiency.