Mussels as a tool for mitigation of nutrients in the marine environment

Long-line mussel farming has been proposed as a mitigation tool for removal of excess nutrients in eutrophic coastal waters. A full-scale mussel farm optimized for cost efficient nutrient removal was established in the eutrophic Skive Fjord, Denmark where biological and economic parameters related to nutrient removal was monitored throughout a full production cycle (1yr). The results showed that it was possible to obtain a high area specific biomass of 60tWWha−1 equivalent to a nitrogen and phosphorus removal of 0.6–0.9 and 0.03–0.04tha−1yr, respectively. The analysis of the costs related to establishment, maintenance and harvest revealed that mussel production optimized for mitigation can be carried out at a lower cost compared to mussel production for (human) consumption. The costs for nutrient removal was 14.8€kg−1N making mitigation mussel production a cost-efficient measure compared to the most expensive land-based measures.

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