

Press release

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## Mussel farming to counter eutrophication in the Baltic – an environmental measure in need of further development

**September 2009 saw the launch of the Environmental Mussels project, led by Odd Lindahl from the Royal Swedish Academy of Sciences and funded by BalticSea2020. The aim of the project was to make mussel farming a cost-effective environmental measure to improve coastal water quality in the Baltic. However, the results show that mussel farming in the Baltic is associated with high costs and technical difficulties that have yet to be resolved.**

Blue mussels are effective water filters, and mussel farms can contribute to clearer water locally. When the mussels are harvested, nutrients are removed from the sea and can be processed into animal feed. The aim of the Environmental Mussels project was to investigate whether mussel farms could be a cost-effective means of reducing levels of nitrogen and phosphorus in Baltic coastal waters.

*“We wanted to see whether mussel farming could be a cost-effective way of accelerating improvements in coastal water quality, and we awarded funding of SEK 6 million for the project,” says Conrad Stralka, executive director of BalticSea2020. “Unfortunately conditions in the Baltic proved complex and so the project’s aims were hard to achieve.”*

The project ran from 2009 to 2012. During this period, two full-scale mussel farms were set up, one at Hagby Hamn in southeastern Sweden and one at Hållsviken south of Trosa near Stockholm. The idea was to measure the growth of the mussels on the farms and estimate the potential uptake of nutrients from the Baltic Sea. Farming techniques and harvesting equipment from Sweden’s west coast were to be adapted to the smaller and more delicate mussels of the Baltic, and methods developed for reusing the nutrients in the mussels on land, for example in the form of chicken feed.

### **The project’s aims could not be achieved**

Cold winters with thick ice and substantial ice drift during the life of the project disrupted the mussels’ growth and wrecked the farms. The number of mussels at the farms was therefore not sufficient to enable comparisons of growth using different types of nets, nor for the development of technology for the production of mussel meal from Baltic mussels. The planned development of a prototype harvesting machine was also abandoned as there were too few mussels to harvest.

A wealth of important experience was nevertheless gained during the course of the project, including that farming techniques are currently costly and require improvement and adaptation to thick ice and ice drift if they are to work in the Baltic. Maintenance and harvesting on large-scale farms also require large and specially equipped work boats. The settling and growth of mussels in the Baltic are uncertain and unpredictable – the mussels settled well on the farms during the project, but growth varied and on one occasion a large quantity of mussels were lost. Besides variations in the number of mussels, it was seen that barnacles rather than mussels can sometimes become dominant. The project could not explain differences in growth, why the mussels were lost, or why barnacles outcompeted mussels in some places.

An analysis of other mussel farming projects, for instance in the St Anna archipelago in southeastern Sweden, found that in some places the quantity of mussels was very good after two years, while in others there were few mussels or even none at all. Further research is required to ascertain why some locations are well-suited to mussel farming and others are not.

BalticSea2020 concludes that mussel farms are one of many ways of helping our seas but face considerable

challenges in the Baltic. It is well-established that mussels have the potential to remove nitrogen and phosphorus from seawater, but mussel farming is financially risky and not a cost-effective environmental measure for the Baltic Sea based on current technology and know-how.

To read the full report “Mussel Farming as an Environmental Measure in the Baltic” by Odd Lindahl, visit the home page of BalticSea2020, [www.balticsea2020/english](http://www.balticsea2020/english).

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