

## **Optimal pollution control: The case of the Baltic Sea?**

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### Abstract

In this paper, we develop a bio-economic model to derive a marginal damage function for nutrient enrichment that can be compared with the marginal net-benefit function of nutrient enrichment. This comparison provides the basis for policies that balance the use of nutrients in land-based industries (for example agriculture) with the external cost. The model is empirically applied to the case of the Baltic Sea, where Eastern Baltic cod fisheries are affected by nutrient enrichment. The results indicate that nitrogen loadings are too high and that they need to be reduced in order to get the optimal cod stock level. If the Total Allowable Catch (TAC) of the cod fisheries is set equal to the optimal yield, with a given discount rate of 4% per year, the marginal benefit would equal the marginal cost of about 2.2% nitrogen input reduction.