



Reduction of nitrogen deposition to the Baltic Sea in 2020

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In the Baltic Sea Action Plan (BSAP), the countries around the Baltic Sea have agreed to take actions to reduce the input of nitrogen and phosphorus to the Baltic Sea to restore the good ecological status of the Baltic marine environment by 2021. A reduction of 15.25 kt of phosphorus and 135 kt of Nitrogen is required to fulfil the BSAP, and the countries have agreed to share the nutrient reduction burden via a country allocation scheme. In the plan only reductions in land based sources are included. However, deposition of nitrogen from the air accounts for approximately 25% of the nitrogen input to the Baltic Sea. A quantification of the current and future atmospheric nitrogen deposition is therefore important.

Following regulations, e.g. the EU National Emission Ceiling (NEC) directive, emissions of nitrogen containing compounds to the atmosphere have decreased in recent years, which has also lead to a decrease in the nitrogen deposition. A new NEC directive that is currently under negotiation is intended to reduce the emissions (and thereby the depositions) even further before 2020.

We have calculated the nitrogen deposition to the Baltic Sea for the years 2003 and 2020 using the Danish Eulerian Hemispheric Model (DEHM). Emission input to the model simulations are actual emissions for the year 2003 and projected NEC-II emissions in 2020. The simulations are performed with identical meteorology for the two years and the calculated atmospheric nitrogen deposition is afterwards compared. The deposition of nitrogen to the Baltic Sea is projected to decrease with 29 kt or 18% in 2020 compared to 2003. In a series of model simulations the contribution from each country around the Baltic Sea to the deposition of Nitrogen to the Baltic Sea is calculated by applying a tagging method. The calculations were made with both 2003 and 2020 emissions and the reduction in contribution of each country was calculated.