



Trends in nitrogen concentrations and load in 48 minor streams draining intensively farmed Danish catchments, 1990-2014. How can the observed trend be explained?

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The total land-based nitrogen load to Danish coastal waters has decreased by 50% since 1990 through a reduction of the outlet of nitrogen from sewage point sources and diffuse sources. On a national scale nitrogen load from diffuse sources, has been reduced by 43% , mainly due to limitation of the amount of N input to different crops, rules for timing and application of manure, mandatory demands for catch crops and restoration of wetlands. The latter increasing the nitrogen retention capacity in surface waters.

However, on a local scale huge variations exist in the reduction of the diffuse nitrogen load. Since 1990, an important part of the Danish national monitoring program on the aquatic environment (NOVANA) has been directed at quantifying the nitrogen concentrations and load in 48 minor streams draining small intensively farmed catchments. The 48 catchments have a mean size of 18 km², farmed area constitutes more than 60% of the catchment area and the catchments have no significant outlets of sewage to the streams. The statistical trend results (based on a seasonal Mann-Kendall) from these 48 streams show a 9-65% reduction in the diffuse nitrogen load (mean: 48%). The large differences in trends in the diffuse N load are related to differences in catchment-specific variables such as nitrogen surpluses, nitrogen leaching from the root zone, hydrogeology and nitrogen retention in ground and surface waters.