

Integrated mitigation strategy for phosphorus losses to the lake Vansjø, Norway

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The western part of lake Vansjø in southeastern Norway has a very poor water quality due to algal growth. The water quality of lake Vansjø is of great concern because it is drinking water reservoir of 60.000 inhabitants and is an important recreation area for people living in the region.

During the last 10 years an extra effort has been made to improve water quality by implementing various measures in all sectors contributing to the pollution of the lake. Agriculture is one of the main contributors of nutrients to the lake and within this sector a comprehensive implementation of measures has been attained.

The objective of this paper is to evaluate the effect of the comprehensive integrated effort that has been put into reducing diffuse pollution (especially phosphorus losses) from agricultural areas around the lake western Vansjø.

The measures consisted of reduced tillage, reduced P fertilizer application, vegetated buffer zones and constructed wetlands. The strategy to implement measures consists of information campaigns, farmer meetings with discussions, field trips, environmental planning on individual farms including farms visits and least but not last contracts and economic incentives. Implementation of measures was registered and reported for each farm at the field scale.

Monitoring of the water quality in 9 small streams consisted of manual water sampling carried out weekly and during events starting 18. October 2004 and to d.d. Seven of the small streams represented runoff from agricultural and forested areas, one stream had only forested area within its catchment and one stream represented runoff from the housing areas in the city Moss.

Results show that from 2004 to 2009 the use of P fertilizer has been reduced by approx. 75%. The area of no-till in autumn has increased and for some of the stream catchments cover 100 % of the area. Vegetated buffer zones are established along most small streams and 11 constructed wetlands were built during the period 2004-2009.

The P concentrations of the seven agricultural streams show annual variation according to the weather conditions, but there is a decreasing trend in concentration though the statistical significance has not yet been proven.

The poster will present the statistical significance of trends in P concentration in relation to the measures implemented in the small agricultural stream catchments around the lake western Vansjø.