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A new emission-based approach for regulation of N losses from agricultural areas to surface waters

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MOTIVATION

> Denmark has successfully reduced N emissions to surface waters with app. 40% since 1990 by general regulations in agricultural production.



> BUT a further reduction amounting to 7,800 tonnes N is required for WFD II → calls for new approaches to regulations of agricultural N-emissions !



MOTIVATION

- Focus is now towards differentiating regulations, according to local conditions.
- > A map of N retention in DK has been developed → detect vulnerable areas linked to known vulnerable waters (estuaries) and nature (NATURA 2000 areas).
- Model estimates cannot stand alone: farmers wish to be regulated based on knowledge of their actual N-emissions to waters !





OBJECTIVES

Develop a monitoring design that can constitute the basis for regulation of nutrient emissions to surface waters at micro catchment scale

Specific objectives

- i) Design and test a stream monitoring program, to quantify N emissions at micro catchment scale (10 - 30 km²).
- > ii) Investigate variability in N emissions at sub-micro catchment scale.



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RESULTS: VARIABILITY IN N AND Q ONLY FEW DRAINS





RESULTS: VARIABILITY IN N AND Q DRAINED





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RESULTS: VARIABILITY IN N AND Q SYSTEMATICALLY DRAINED



CONCLUSION

- > A concept for the design of monitoring of agricultural N-emissions are being drawn as a guideline for farmers.
- Sampling and data analysis continues in the coming 3 years including a model component.
- > The future regulation of N-emissions from Danish agriculture will surely change in the coming years – but where to ?



Thank you for your attention!

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