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OPtimal strategies to retAIN and re-use water and nutrients in small agricultural catchments across different soil-climatic regions in Europe

CS#10: Kråkstad catchment – NORWAY

Measure in focus:

Small Constructed Wetland

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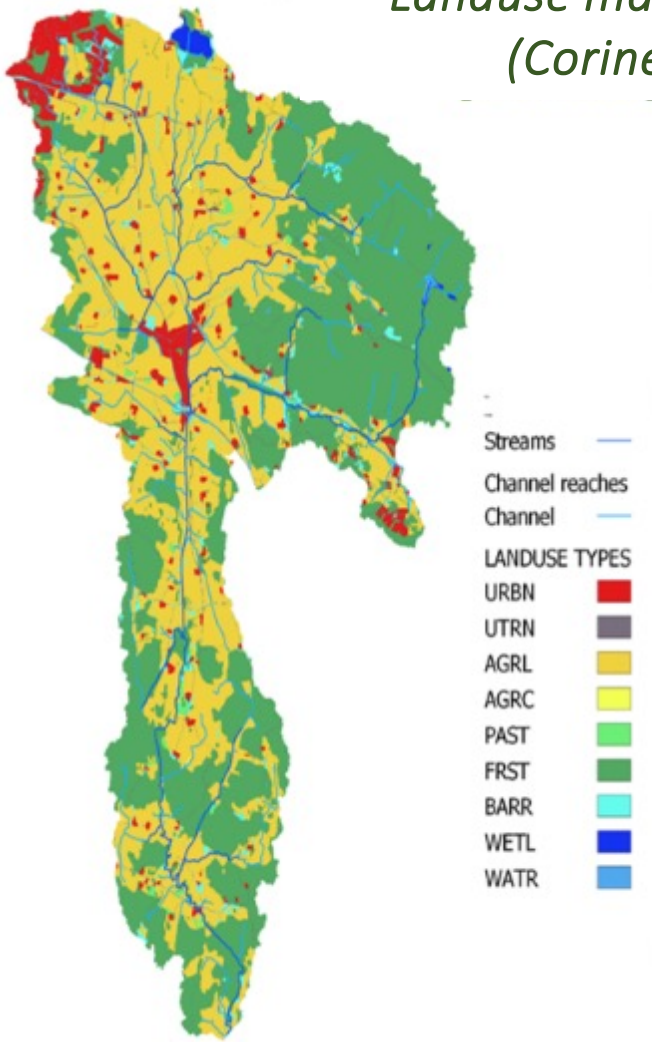
Kråkstad catchment, Norway

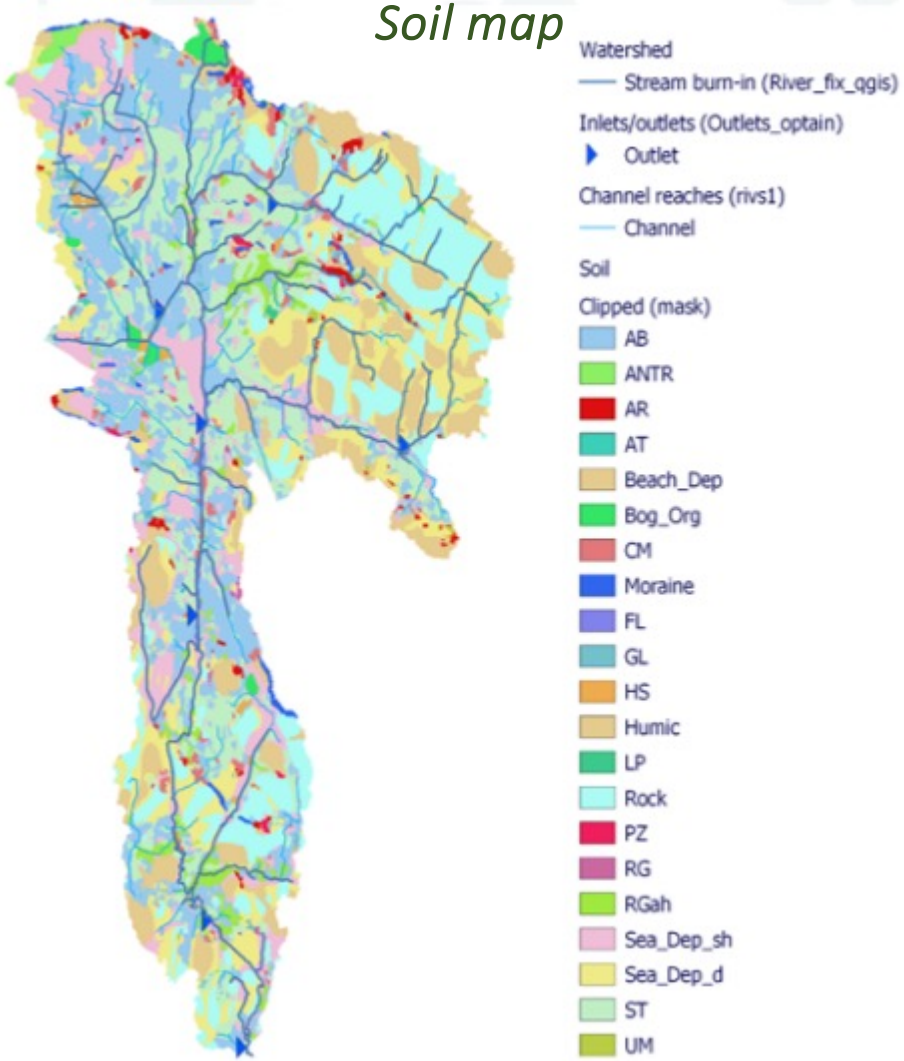
area is ~51 km²

Landuse map (Corine)



43% is agricultural land (mostly cereals)

Soil map



heavy clays soils dominates in the area

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NSWRM within Kråkstad catchment

Several NSWRM have already been implemented, e.g. :

- reduced tillage (no tillage in autumn)
- buffer zones along the streams
- grass-covered water ways
- grass on the areas prone to flooding and erosion
- **constructed wetlands**

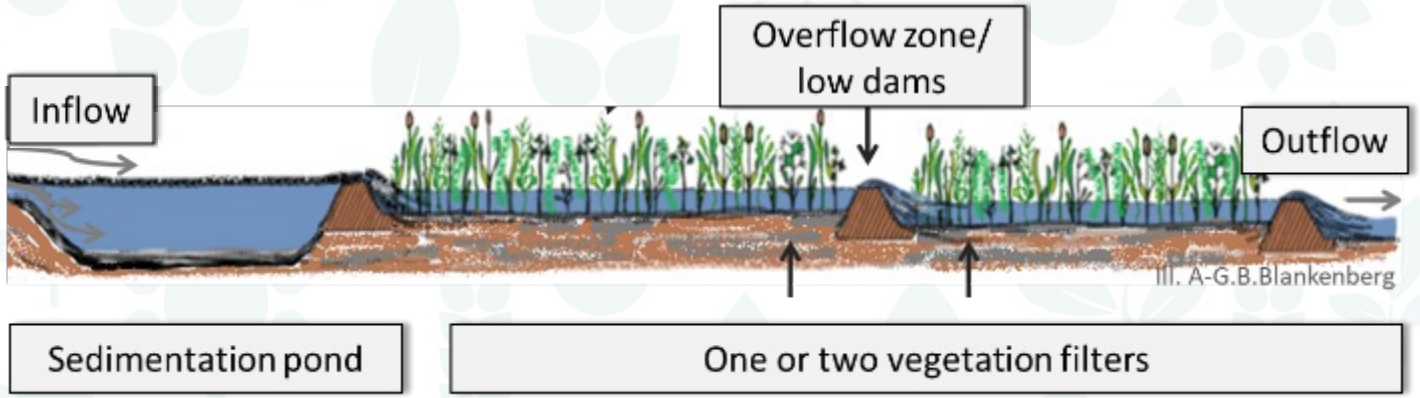
Field in stubble, April 2022, Kråkstad catchment. Photo: AG.Blankenberg

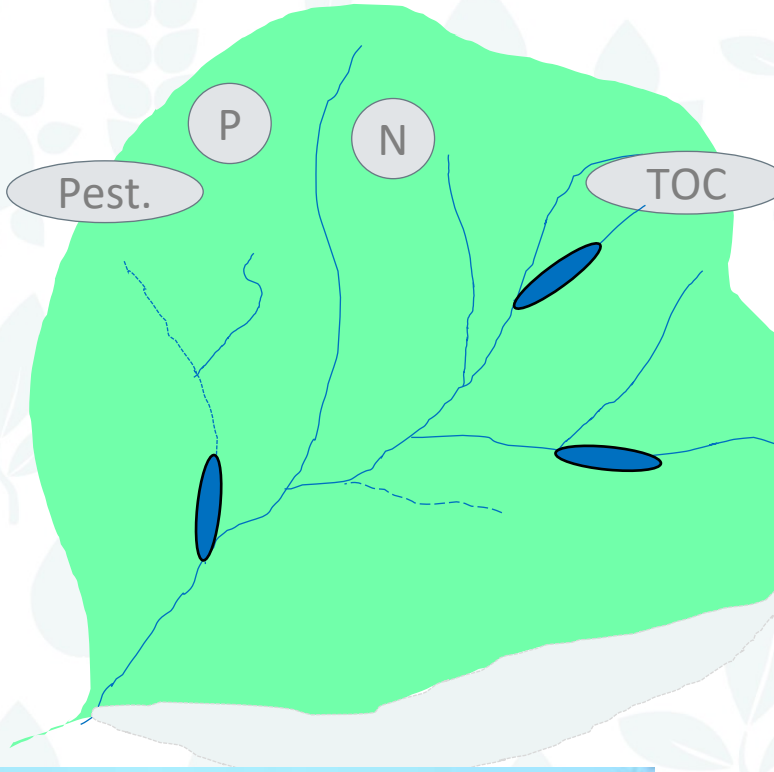
Grass/Stubbles on the areas prone to flood and erosion, November 2020, Kråkstad catchment. Photo: AG.Blankenberg

Buffer zones in Kråkstad catchment, June 2021, Photo: A-G. Blankenberg

Constructed wetlands – sediment and phosphotus focus

Elements of the typical small constructed wetland in Norway:





Photos: AG.Blankenberg

Are smalll constructed wetlands effective in Norway?

	Sediment	TP	TN	Pest.
Removal efficiency *(see last slide for references)*	35-75%	20-45%	3-15%	5-65%

NOTE:

Removal of dissolved nutrients and pesticides is a major challenge in small wetlands with high hydraulic load, due to short residence time.

Small Constructed Wetlands – they work!!

BUT (!!!) the efficiency of the CW depends on many factors,

- Catchment characteristics:

- Design
  - Water retention time in the CW
  - Correct location within the catchment & right dimensions
- Maintenance

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Reference:

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