

## Beslutsstödssystem för planering på lokal nivå



**Mats Söderström, Omran Alshihabi, Faruk Djodjic**

Sveriges Lantbruksuniversitet

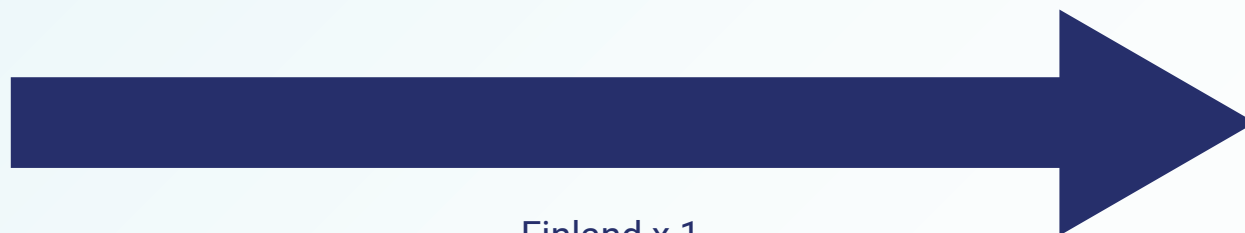
# Multifunktionalitet, hälsosam jord

Kan vi presentera avancerad modelldata för slutanvändare, och göra den tillgänglig och användbar i en beslutsstödsprocess i detta sammanhang – kvantifiering av effekter av åtgärder i fält/inom fält skala?

Effekter av åtgärder  
på näringsförlust  
minskning från  
(anpassad) modellering

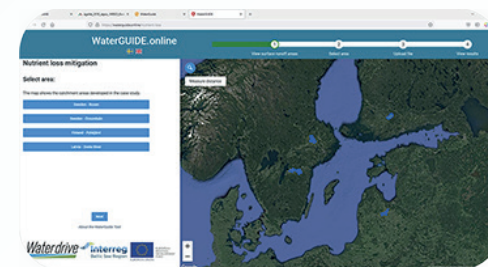
Nedskala till lokalt  
nivå med mycket  
detaljerad digital  
geografiska data  
och automatiserade metoder

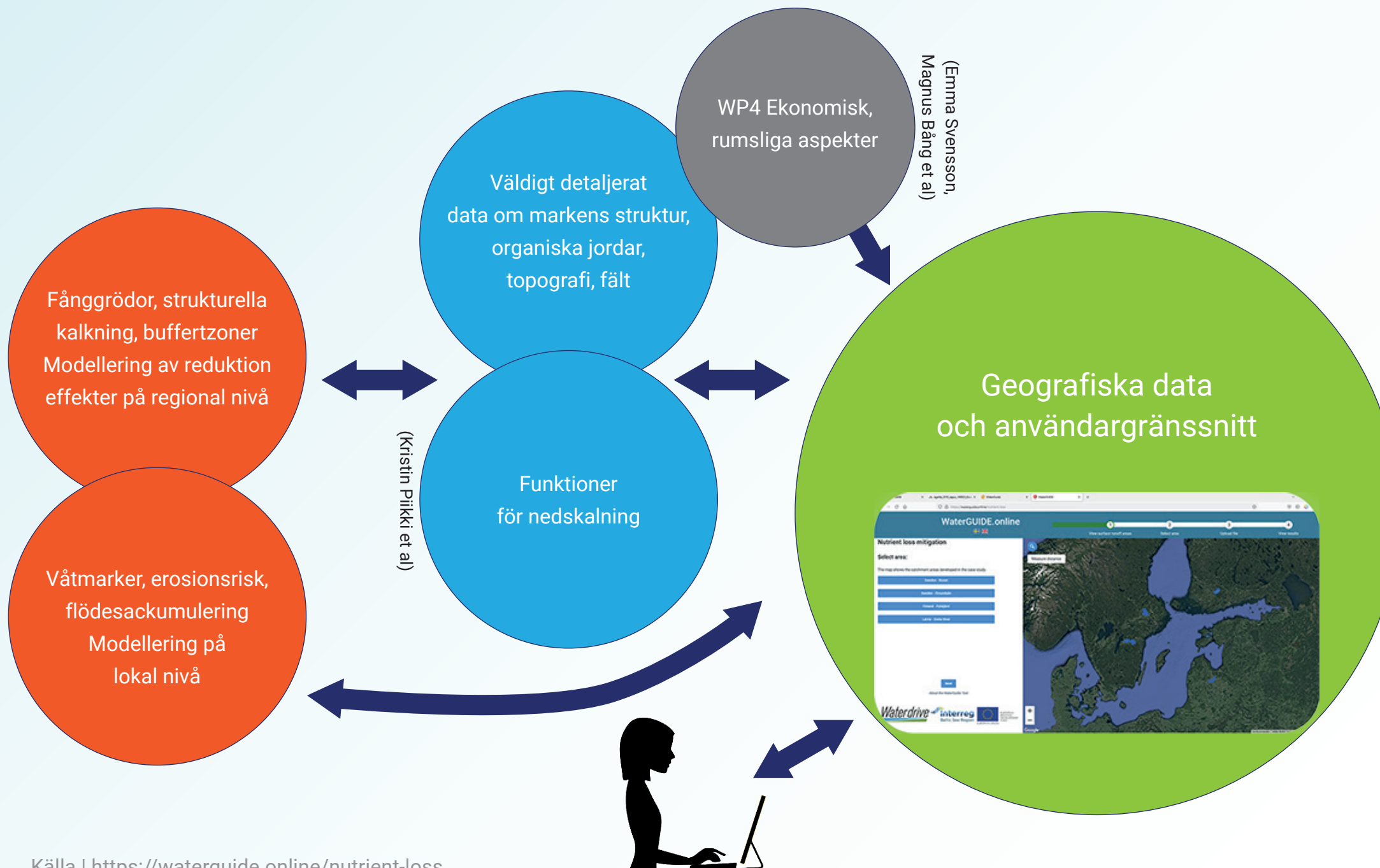
Gör uppgifterna tillgängliga  
till slutanvändaren – rådgivare,  
bönder, i en interaktiv  
systemet



Finland x 1  
Latvia x 1  
Sweden x 2

**WaterGUIDE.online**





Källa | <https://waterguide.online/nutrient-loss>

Nutrient loss mitigation

Select area:

The map shows the catchment areas developed in the case study.

- Sweden - Roxen
- Sweden - Örsundaån
- Finland - Pyhäjärvi
- Latvia - Svete River

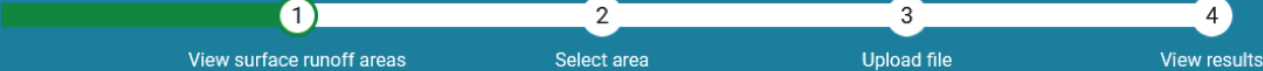
Next

About the WaterGuide Tool





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## Nutrient loss mitigation

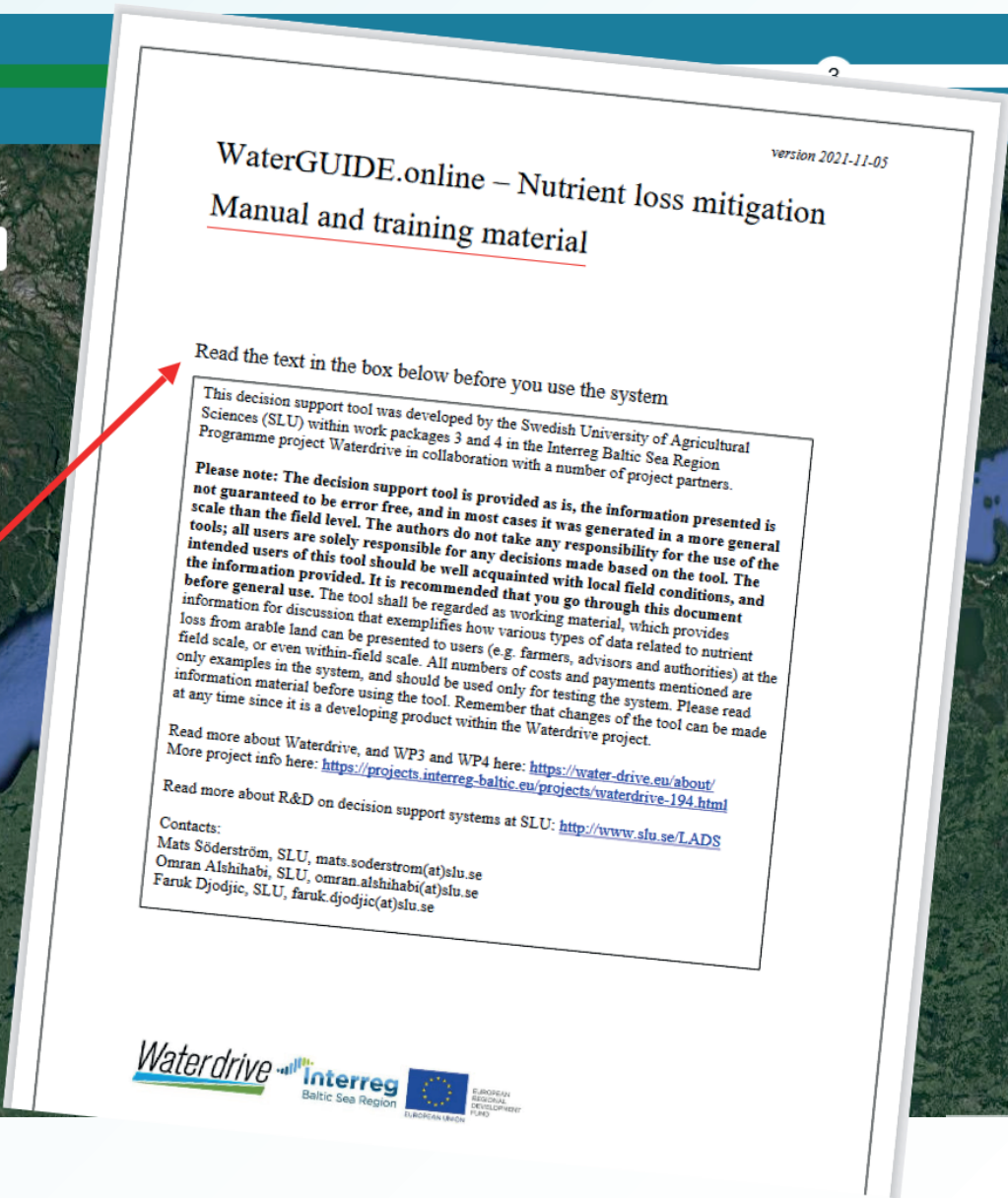
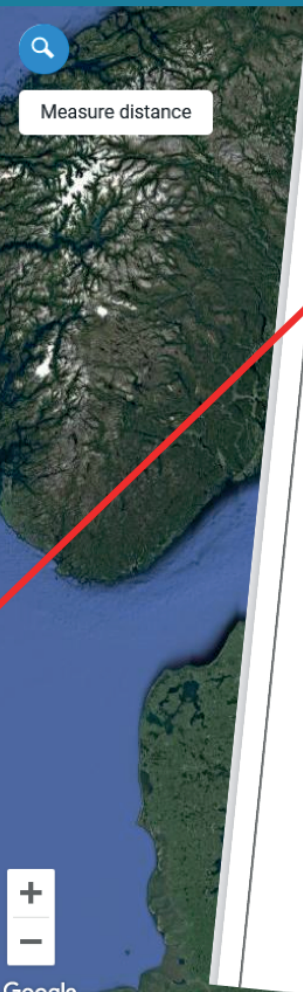
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### WaterGUIDE.online – Nutrient loss mitigation Manual and training material

version 2021-11-05

Read the text in the box below before you use the system

This decision support tool was developed by the Swedish University of Agricultural Sciences (SLU) within work packages 3 and 4 in the Interreg Baltic Sea Region Programme project Waterdrive in collaboration with a number of project partners.

**Please note:** The decision support tool is provided as is, the information presented is not guaranteed to be error free, and in most cases it was generated in a more general scale than the field level. The authors do not take any responsibility for the use of the tools; all users are solely responsible for any decisions made based on the tool. The intended users of this tool should be well acquainted with local field conditions, and the information provided. It is recommended that you go through this document before general use. The tool shall be regarded as working material, which provides information for discussion that exemplifies how various types of data related to nutrient loss from arable land can be presented to users (e.g. farmers, advisors and authorities) at the field scale, or even within-field scale. All numbers of costs and payments mentioned are only examples in the system, and should be used only for testing the system. Please read information material before using the tool. Remember that changes of the tool can be made at any time since it is a developing product within the Waterdrive project.

Read more about Waterdrive, and WP3 and WP4 here: <https://water-drive.eu/about/>  
More project info here: <https://projects.interreg-baltic.eu/projects/waterdrive-194.html>

Read more about R&D on decision support systems at SLU: <http://www.slu.se/LADS>

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## Nutrient loss mitigation

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About the WaterGuide Tool



EUROPEAN  
REGIONAL  
DEVELOPMENT  
FUND



Google

version 2021-11-05

Start – and find your field (Sweden, Finland, Latvia)

Open <https://waterguide.online/nutrient-loss>

WaterGUIDE.online

Nutrient loss mitigation

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Measure distance

Waterdrive

interreg

Baltic Sea Region

EUROPEAN UNION

EUROPEAN REGIONAL DEVELOPMENT FUND

Select case study area. The system has more functions in the Swedish areas Roxen and Örsundaån. In the areas in Finland (Pyhäjärvi) and Latvia (Svete River) the functionality is limited due to differences in data availability. In this document we cover one of the Swedish areas on pages 1-10. Pages 3, 4, 5, 7, 10 are relevant if you choose a field in the case study areas in Latvia or Finland. In this training example, we click on Sweden - Roxen.

WaterGUIDE.online

Select demarcation

Trace in on your area position to enter the point name or location in the search bar. The background map will help you find your way. Click above labels, and then click the field or area you want to work with on the map.

Search by block number

Enter the block number (e.g. 64784858152)

Search

Example of block ids

Sweden: 64784858152

Finland: 8340145781

Latvia: 44345-25013

Waterdrive

interreg

Baltic Sea Region

EUROPEAN UNION

EUROPEAN REGIONAL DEVELOPMENT FUND

The system only works on single agricultural fields. There are different ways of finding the block as it is denoted here) of your interest. You can search using the block-id (example of the system is shown above), to zoom directly to the field. You can also do it manually, for example first using the search function to find a location, then zoom in to your field. Alternatively, you can click on the block of interest to select it. In this example we fill in the block number 64784858152, and then click Search.

2

Hur man, t.ex.:

- Hitta ett fält
- Dela ett fält
- Ladda upp egen data

## Measures against nutrient loss adapted to the characteristics of the field

Navigate the tabs to see the results.

Hide field boundaries

Soil texture, erosion risk   **Wetlands**   Structural-liming   Buffer zones   Catch crops

### Wetlands



Wetland (optimal area)

- 1.00 - 5.00 ha
- 0.50 - 1.00 ha
- 0.25 - 0.50 ha
- 0.10 - 0.25 ha

|                               |        |
|-------------------------------|--------|
| Wetland area (ha)             | 0.1    |
| Reduced P-losses (kg/ha/Year) | 77.6   |
| N-reduction (kg/ha/Year)      | 465.6  |
| Load P (kg/Year)              | 194.0  |
| Load N (kg/Year)              | 3481.3 |
| Cost (SEK/kg P/Year)          | 307.0  |
| Cost (SEK/kg N/Year)          | 51.0   |
| Upstream (ha)                 | 71.7   |

Previous

New search

About the WaterGuide Tool

## Resultatflikar:

- Markstruktur / erosionsrisk
- Våtmarker
- Strukturkalkning
- Buffertzoner
- Fånggrödor





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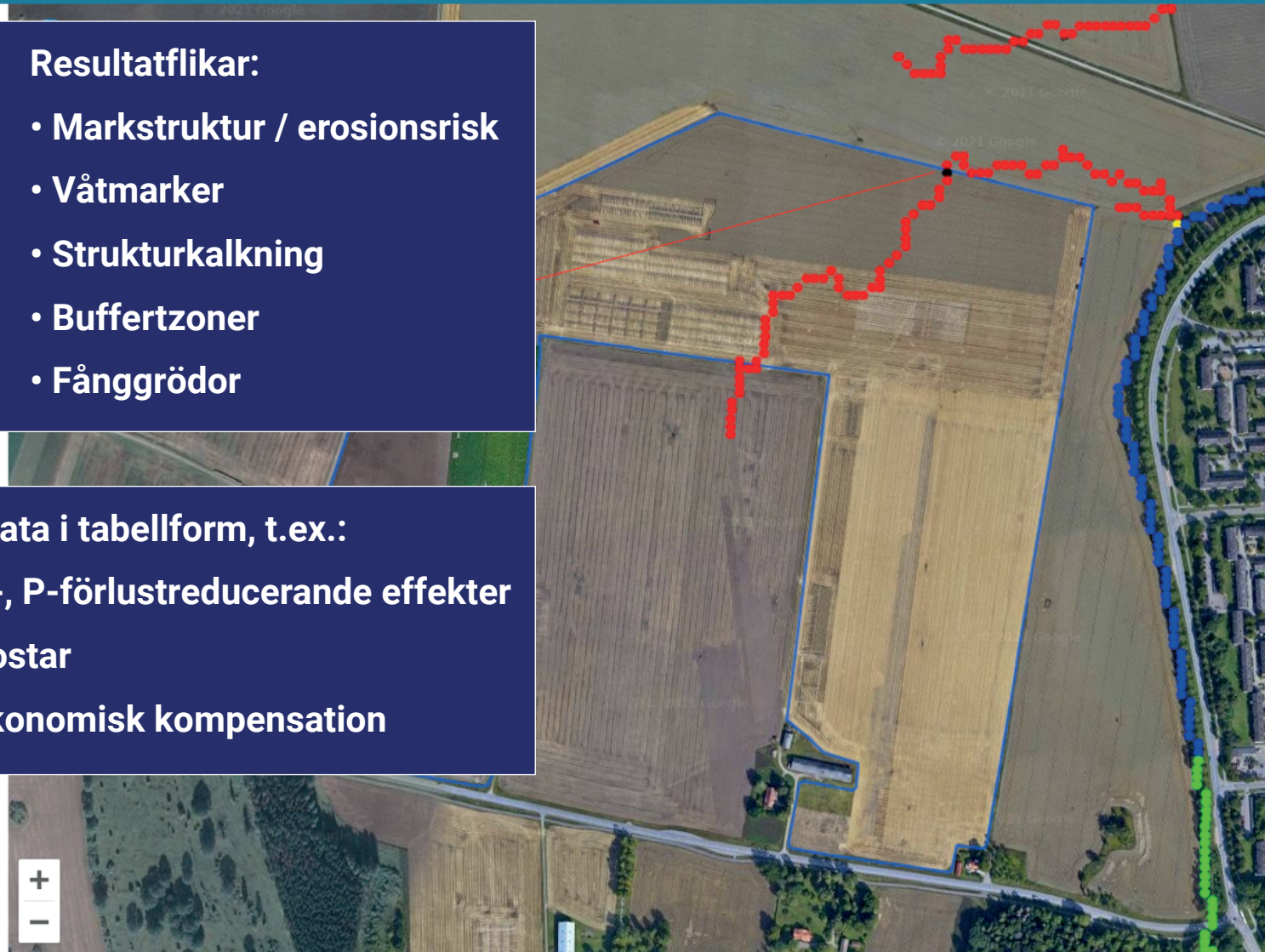
About the WaterGuide Tool

### Resultatflikar:

- Markstruktur / erosionsrisk
- Våtmarker
- Strukturkalkning
- Buffertzoner
- Fånggrödor

### Utdata i tabellform, t.ex.:

- N-, P-förlustreducerande effekter
- Kostar
- Ekonomisk kompensation



Navigate the tabs to see the results.

|                            |          |                   |              |             |
|----------------------------|----------|-------------------|--------------|-------------|
| Soil texture, erosion risk | Wetlands | Structural-liming | Buffer zones | Catch crops |
|----------------------------|----------|-------------------|--------------|-------------|



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[New search](#)

### About the WaterGuide Tool



## Wetlands

**Använd dokumentet för förklaringar**

## Använd dokumentationen för förklarande text och referenser

- Wetland area (ha): Calculated optimal wetland size, based on a hydrological load where 100 m (100 m<sup>3</sup> water/m<sup>2</sup> wetland and year) is assumed to optimal. For run-off modelled values per sub-catchment are used. Only wetlands within a calculated optimal size range of 0.1-5.0 ha are displayed.
  - P-reduction (kg/ha/year): Potential reduction in kg P/year in kg/ha wetland. Calculated according to Weisner et al. (2016).
  - N-reduktion (kg/ha/year): As above but for nitrogen (N).
  - Load P (kg/year): Load in kg P/year for the potential wetlands. Calculations are based on the average runoff and HELCOM Pollution Load Compilation 7 (PLC-7) type concentrations in the subcatchment (Hansson et al., 2019).
  - Load N (kg/year): As above but for N.
  - Cost (SEK/kg P/year): Potential cost in SEK/kg P/year for the wetland locations. Calculations are based on the following assumptions: a construction cost of 350,000 SEK/ha wetland and 20 years (17,500 SEK/year); maintenance cost 4,000 SEK/ year; tenant costs depending on region (2,334 SEK/year where Roxen is location and 1,486 SEK/year where Örsundaån is located; from Statistics Sweden (SCB) in 2018).
  - Cost (SEK/kg N/year): As above but for N.
  - Upstream (ha): Calculated upstream drainage area in ha to a wetland location.
- ase note: In reality, other locations

Please note: In reality, other locations for wetland may be more suitable due to local conditions not included in the modelling. The map shows the results from the modelling based on the data used and assumptions made.

More information in Djodjic et al. (2020)

More information in Djodjic et al. (2020).



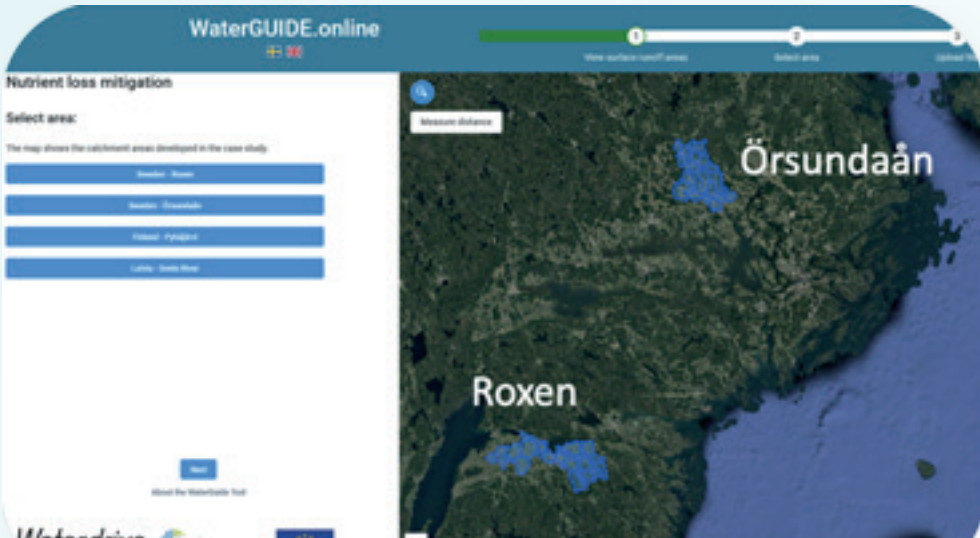
## Tillbaka till regional nivå...

## Regionala data

# Nedskälning

## Lokala data

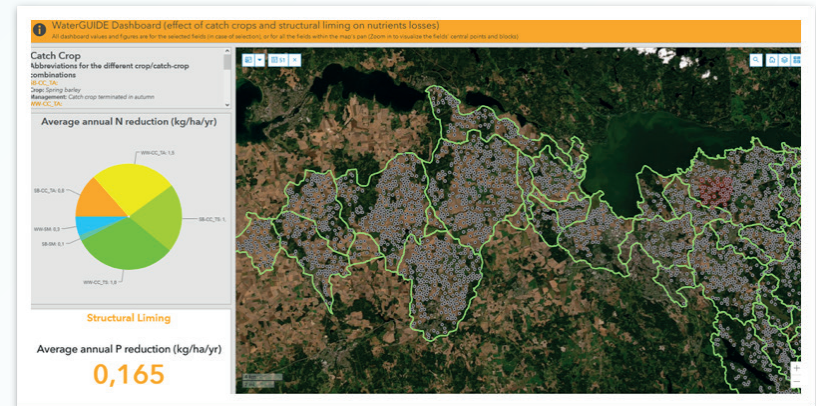
## Lokala data för regionala Översikt i en instrumentpanel



<https://waterguide.online/nutrient-loss>

**Roxen område:**  
**3379 åkrar >2 ha åkermark**

**Örsundaåns område:**  
**2418 åkrar >2 ha åkermark**



[https://bit.ly/waterguide\\_dashboard](https://bit.ly/waterguide_dashboard)

## Exempel: Effekt av

- täckgrödor på minskad kväveförlust
- strukturstyrning på minskad P-förlust

# Slutord

- Se detta som en prototyp – inte komplett, första försöket
- Utmaning att nedskala – både för forskare och användare
- Stor efterfrågan på data – lokal data bör passa modelleringen, mycket data saknas
- Lätt att misstolka – tester och utbildning behövs
- Lämplig för gruppdiskussioner – en del av beslutsstödet, inte den enda
- Nya möjligheter – när du börjar blir nya möjligheter/behov uppenbara

<https://waterguide.online/nutrient-loss> | [https://bit.ly/waterguide\\_dashboard](https://bit.ly/waterguide_dashboard)



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