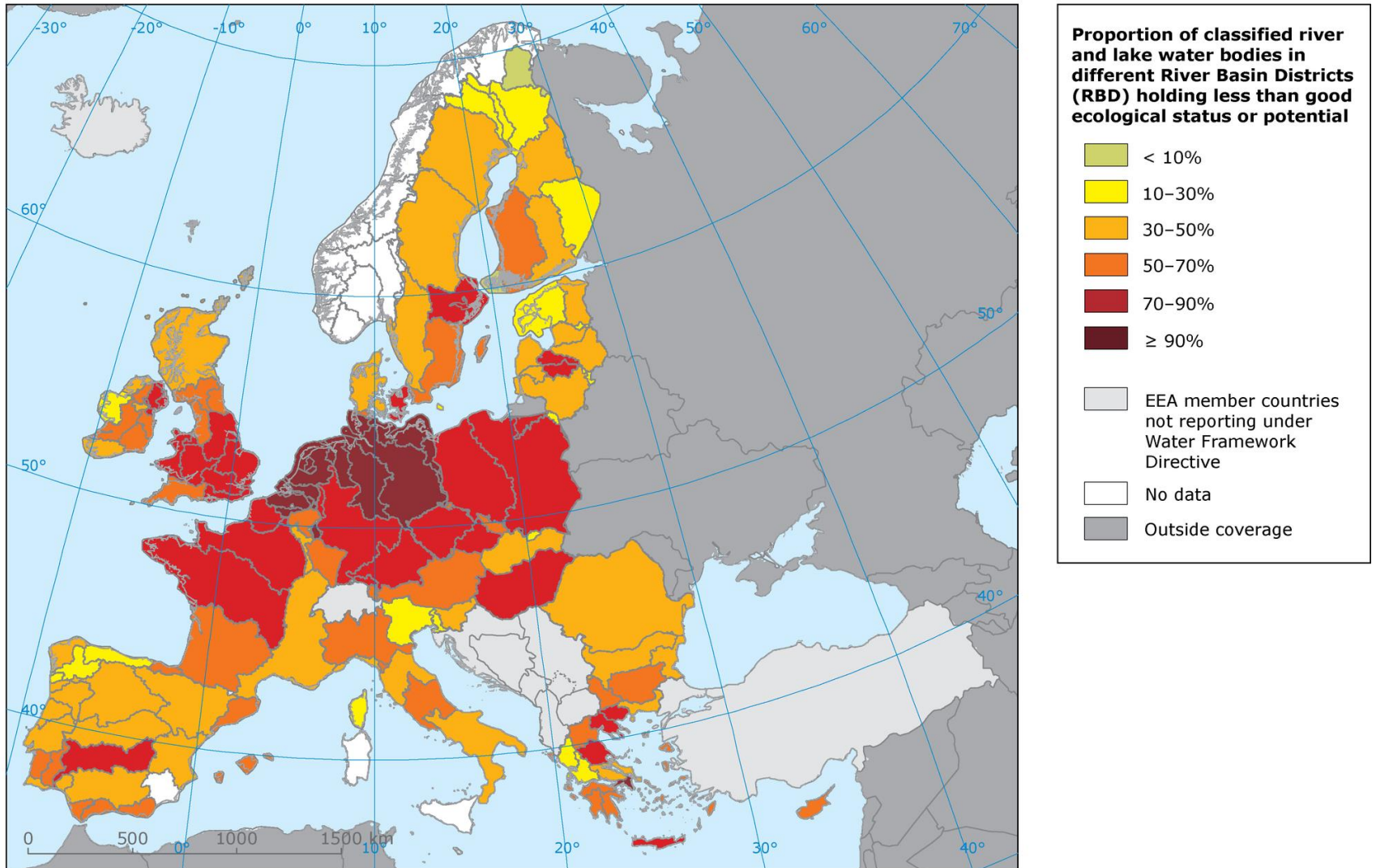


# Are agri-environmental measures effective in reducing nutrient leaching?

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# Ecological status of the water bodies, *EEA*



# Measures for nutrient leaching

## Environment payments for farms (M10)

- Large coverage of farms: xx% joined the program with environmental commitments
  - *Farm-level operations* including, e.g. maximums for nutrient use, field testing, planning the crop sequence
  - *Parcel-specific measures* that can be chosen:
    - Plant cover on fields in winter
    - Environmental management grasslands
    - Cover crops
    - Incorporation of slurry into the soil
    - Recycling of manure and other organic materials
    - Bufferzones
  - Contracts for wetland management
  - Certain measures *targeted* to the regions near to the coast (with less crop cover in winter)

## Other measures

- *Advising services* (M20)
- Joint co-operation (M16), Leader projects (M19). Tailored funding for sea-side regions.
- Investment: Subsurface drainage, manure storing, manure spreading, *biogas from animal manure*
- Investment (M04.4): wetlands
- SME-business (M06)





# Data sources and methods for assessing the impacts

## **Administrative data**

- nutrient use: nitrogen and phosphorus balance

- practices for field cultivation and watersheds management

⇒ Improved data availability by the payments

## **Modelling**

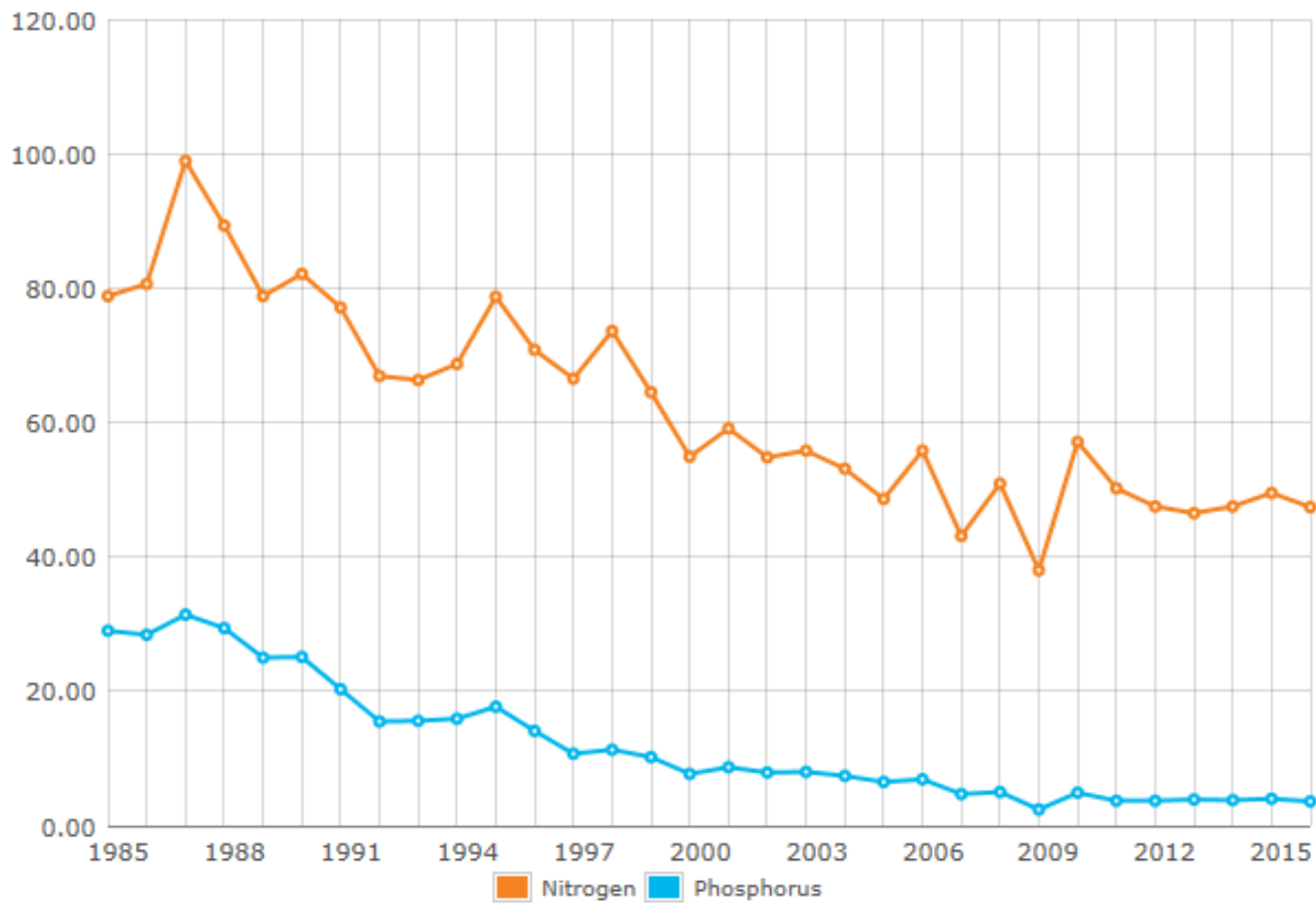
- the impacts by cultivation practices

...based on research findings on the nutrient loading processes

## **Monitoring**

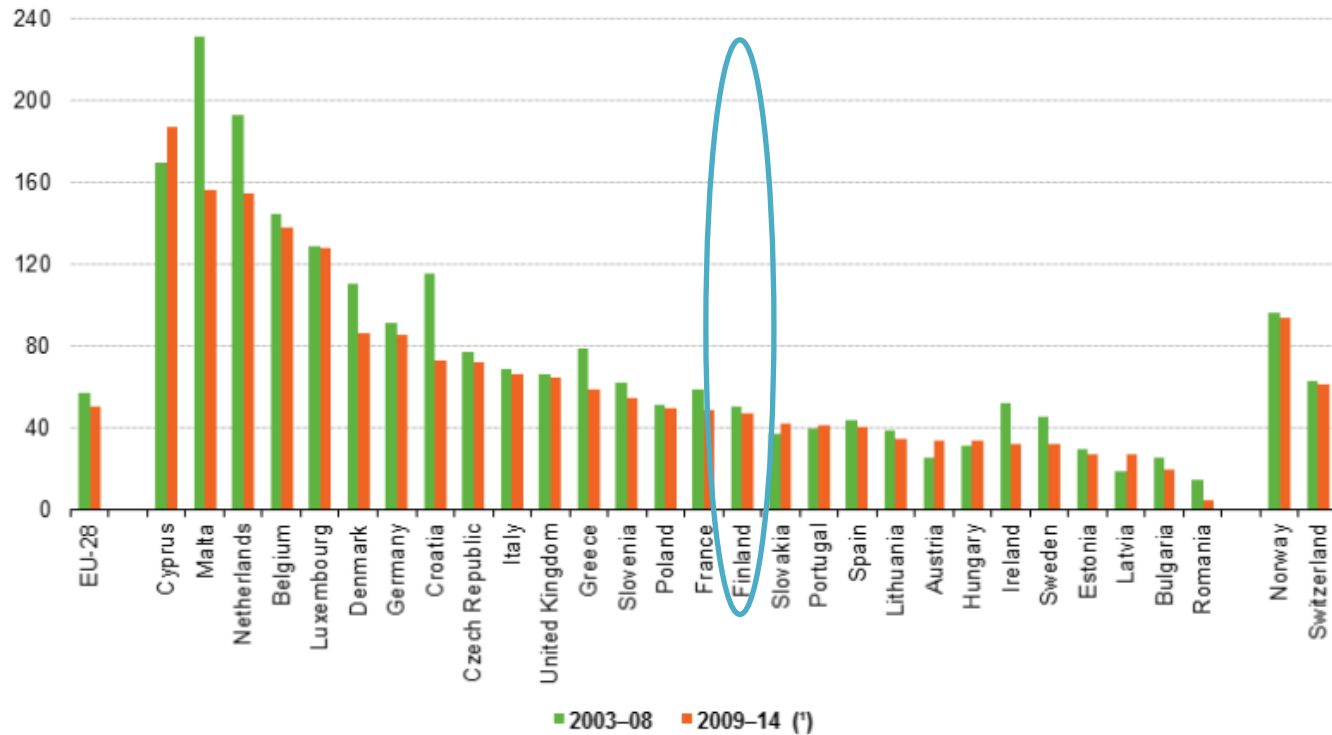
- water quality and state of watersheds.

### Nitrogen and phosphorus balance, kg/ha

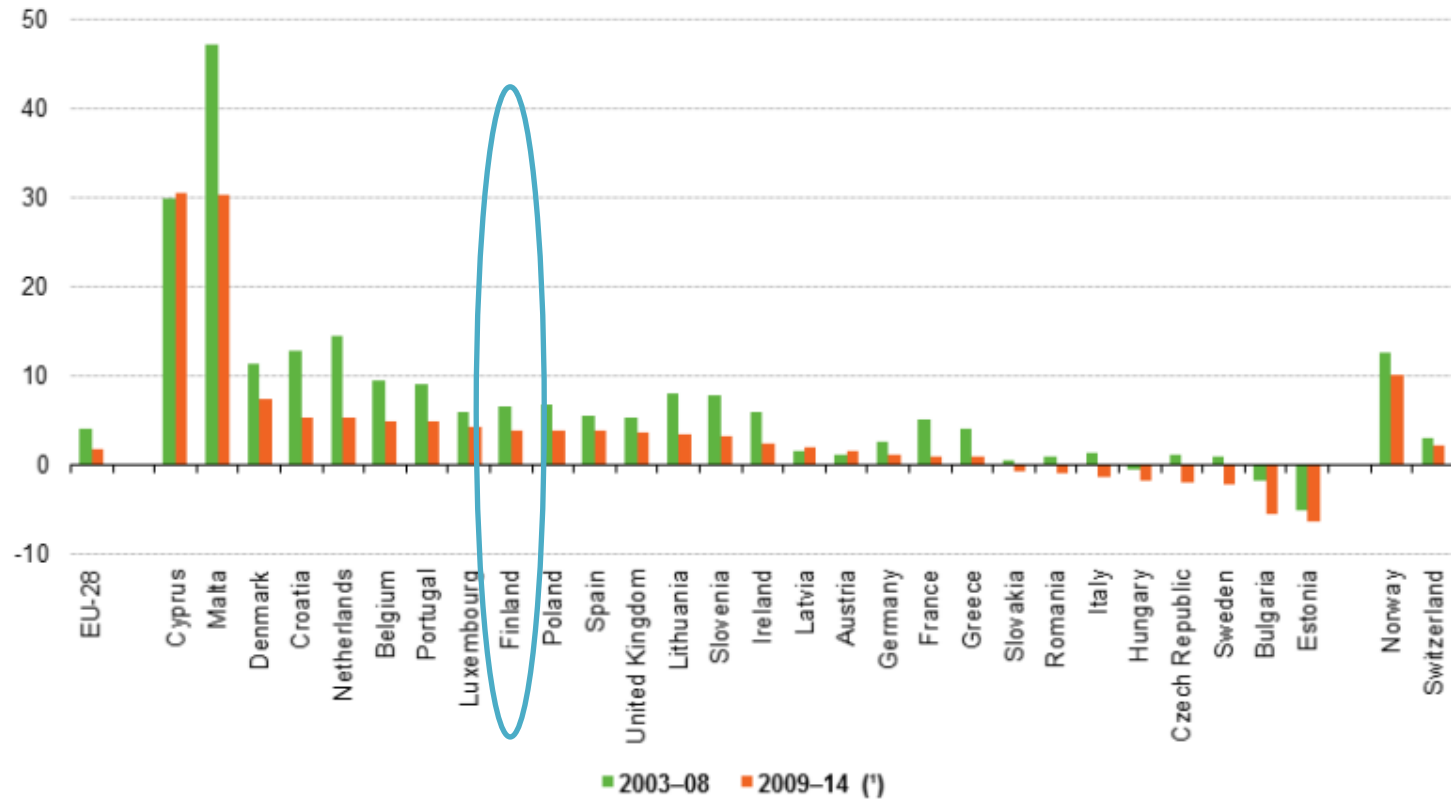


Source: Natural Resources Institute Finland.

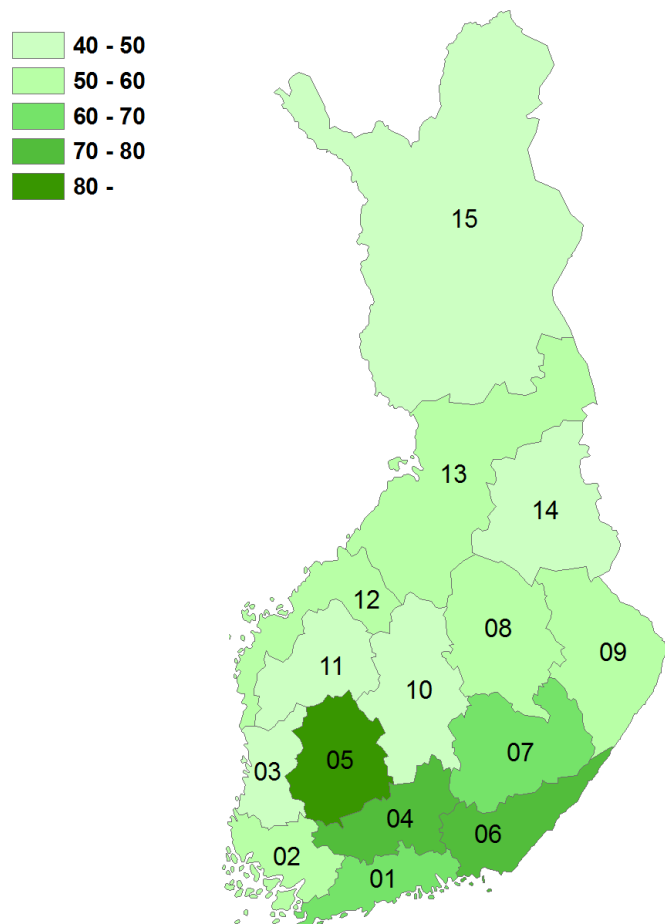
# Nitrogen balance, *Eurostat*



# Phosphorus balance, *Eurostat*



# Plant cover during winter time, %, by various measures



- Estimated decrease of water-erosion 16-24% in 2010-2016 (RUSLE-model). (Lilja et al. 2017)

Data source: MAVI



# Recent changes in water quality

## **River basins and small catchment areas**

- a decreasing trend in the phosphorus concentrations (between early 1990s to 2012)
- during the last years, also trend of nitrogen concentrations has turned to be falling (Rankinen ym. 2016)

## **P -leaching**

- Estimated risk by soil P status decreasing – increasing cover during winter may pose a risk of higher dissolved P losses

# Efficiency of programme measures

## Large coverage of the commitments

- Since 1995, participating the programme has been the normal situation, excluding as an exception
  - > building on environmental awareness in agricultural sector
- Large areal coverage producing also large-scale effects
- Soil management and nutrient circulating as the very basis: effects on nutrient leaching AND climate change

## Large selection of other measures

- Multitude of tools and impact processes bringing more of pressure for changes, also actions that are planned by the local actors

## Further challenges

- Appropriate level of targeted actions (vs. administrative burdening)?
- **Manure management**: cooperation between farms, processing of manure to enable transport, nutrient use according to plant need
  - Some controversial measures with decreasing risk of soil erosion and N losses, but increasing dissolved P losses
- Soil structure improvement, preventing organic C loss



*RAHA-project in Uusimaa.*  
©maaseutuverkosto

# Litterature

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