

# The effect of riverine management on spatiotemporal development of river ecosystem services

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## Challenge

Approaches to quantify the effects of river management measures on spatiotemporal development of river ecosystem services are limited. Quantifying these river ecosystem services can aid the evaluation of management measures and potentially contribute to sustainable river management. This project developed approaches for quantifying river ecosystem services in relation to river management measures and physical pressures.

## Innovative components

- Different landscape classification systems were considered suitable for quantification of river ecosystem services at various scales (e.g. GLC2000, CORINE, Ecotope system for National Waterways)
- Three approaches were developed for quantifying the following river ecosystem services: vegetative biomass production, (juvenile) fish biomass and filtration capacity of dreissenid mussels.

## For whom and where?

Any program/researcher/professional interested in riverine management evaluation, ecosystem services or sustainability.

## Application development and findings

Some of the important findings of this project are:

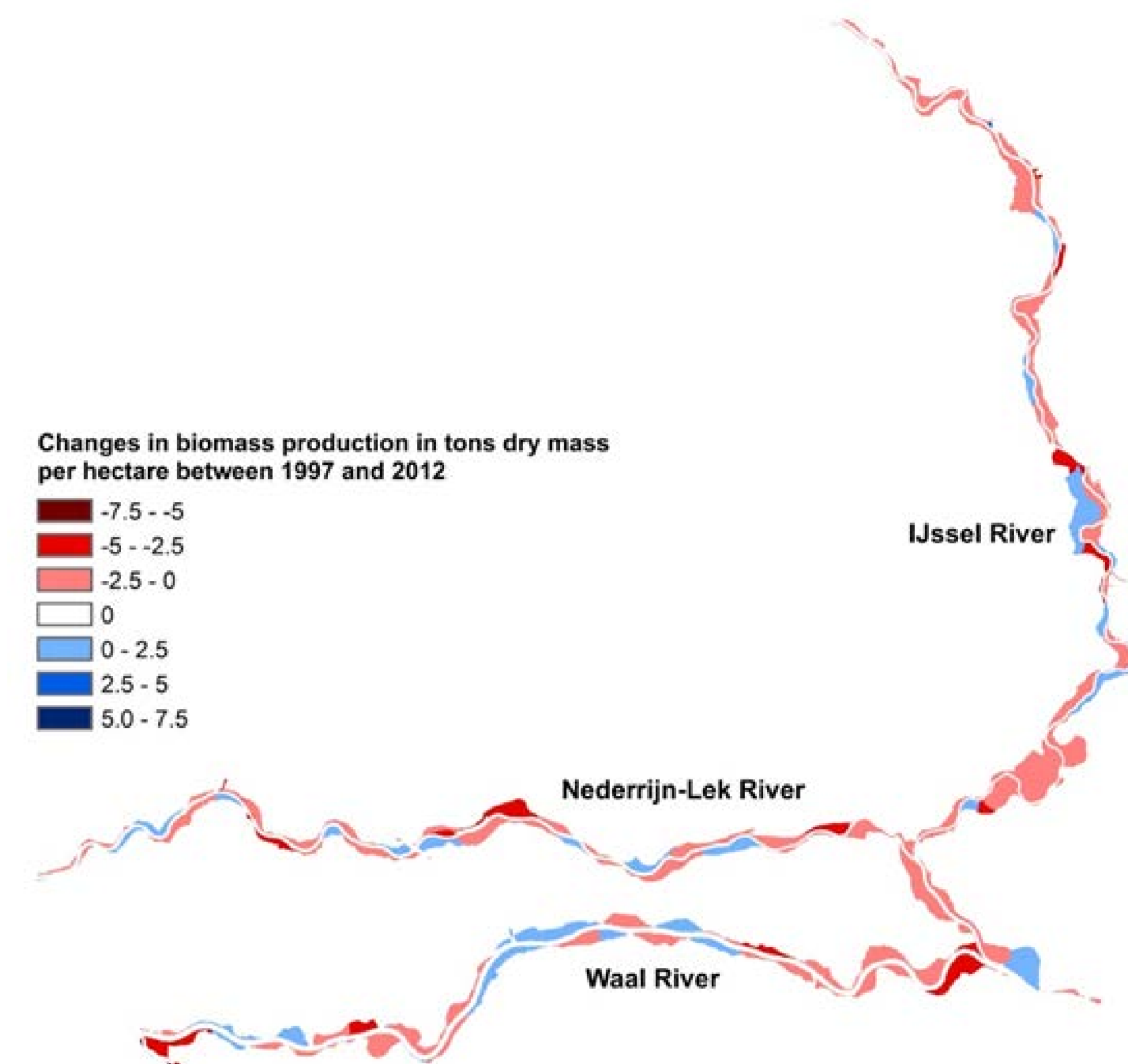
- Vegetative biomass production decreased from 1997 to 2012 as a result of various river management measures and land use changes
- Application of the fish biomass approach showed that juvenile fish biomass is higher in LTD channels than in traditional groyne fields.
- Shipping and desiccation affect freshwater mollusc communities and the ecosystem services they provide, such as water purification through biofiltration

## Status for day-to-day practice

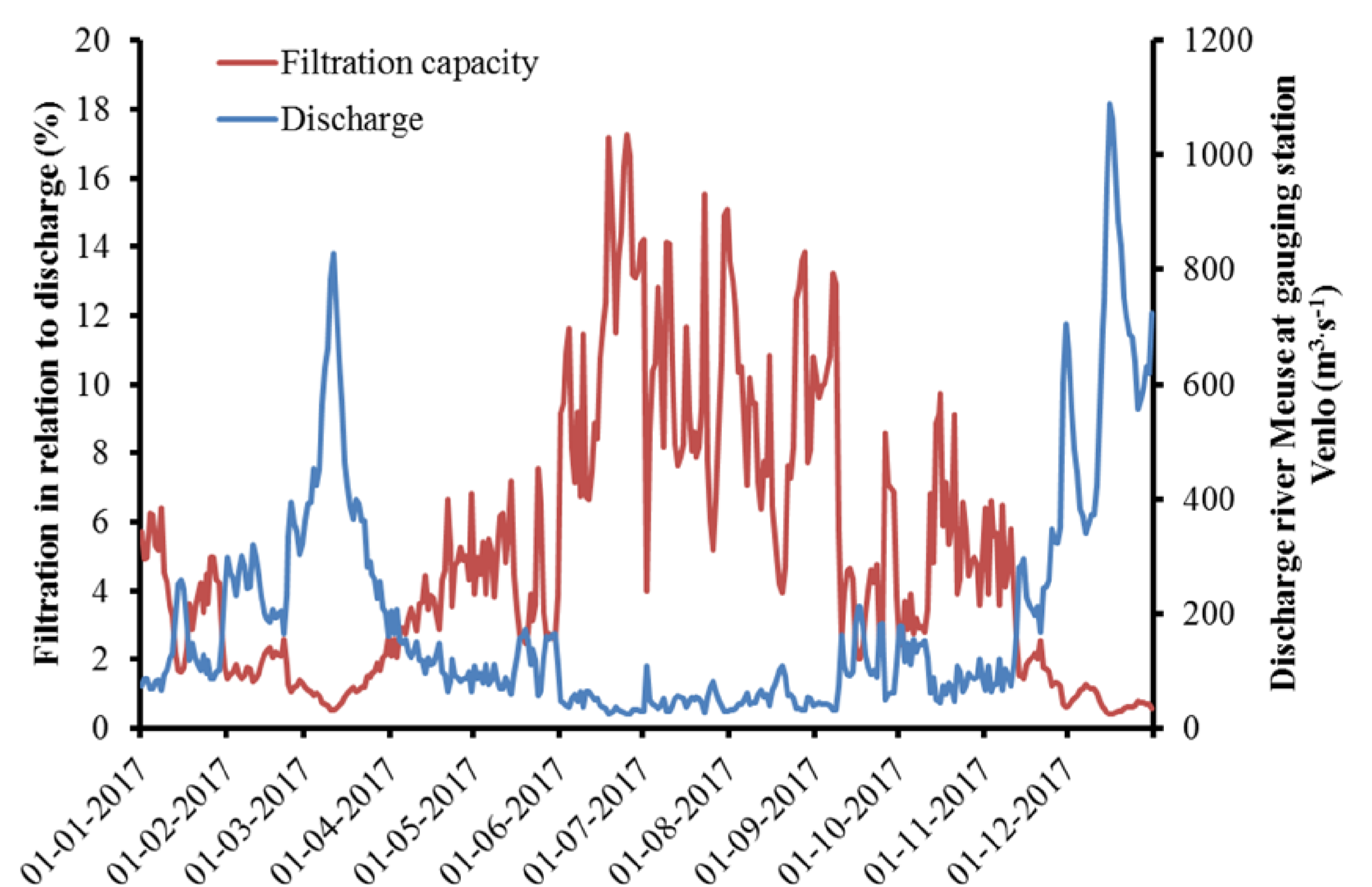
Scripts and results are available for managers to use.

## Next steps

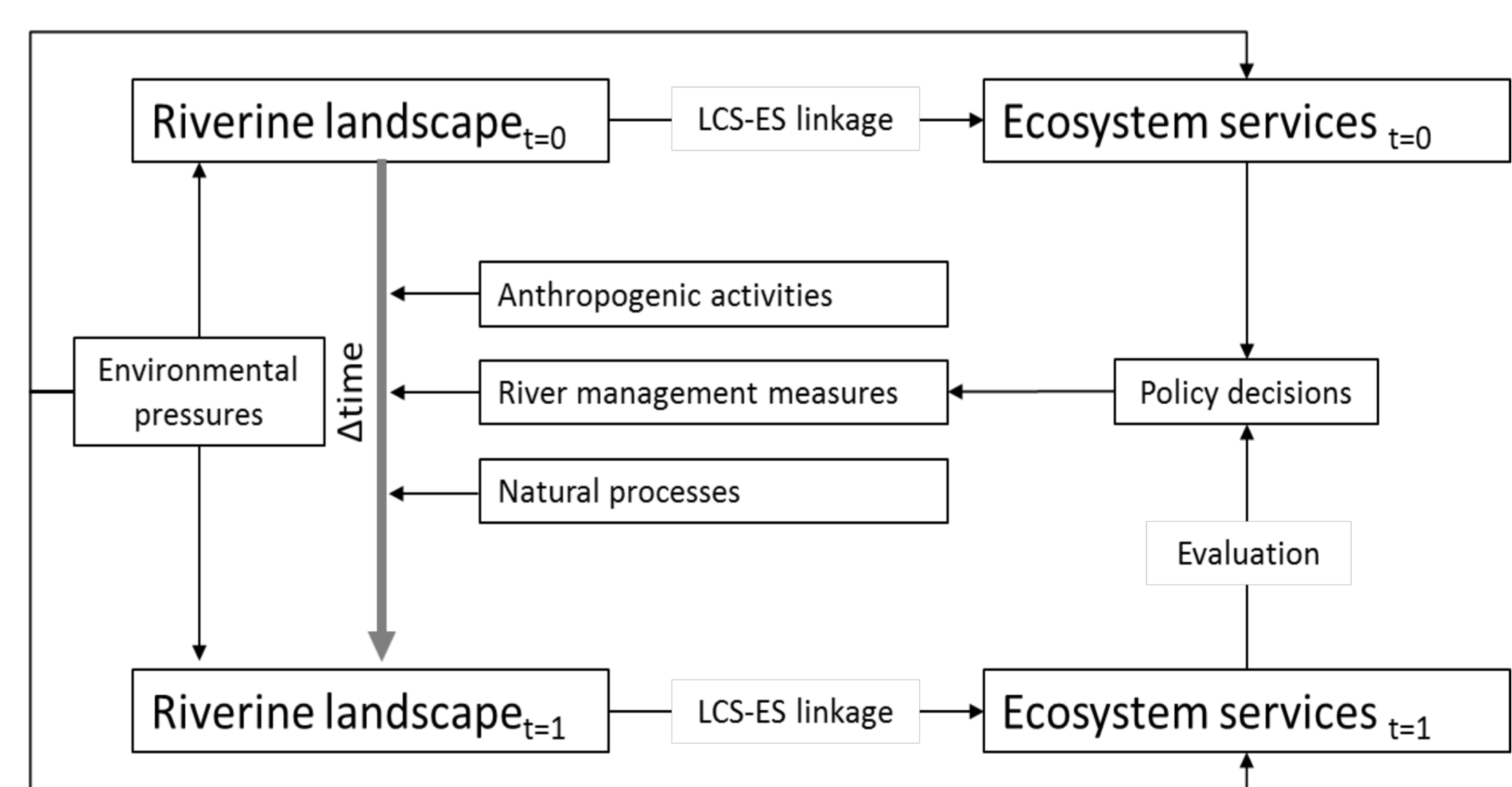
Further development of approaches that quantify riverine ecosystem services such as sport fishing.



The difference in annual biomass production in 177 floodplains along the Rhine River distributaries between 1997 and 2012.



The filtration capacity of dreissenid mussels in relationship to discharge of the river Meuse at gauging station Venlo



Schematic overview of the framework for spatiotemporal riverine ecosystem services assessment and evaluation of this project. (LCS: landscape classification system; ES: ecosystem services).

## Interested?

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Explore more in the Floodplain ecosystem services [project description](#)

