Natural Sponges: Wetland solutions to protect against floods & droughts

Paul Brotherton, Freshwater Manager
Wetlands International Europe

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FREE FLOW

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Association of NGOs: 13 members in 9 European countries - 10+ years of existence

Network office of Wetlands International global organisation

Wetlands International

natuurpunt — Belgium

Tour du Valat — France

CIREF Centro Ibérico de Restauración Fluvial — Spain (2)

Fundación Global Nature

CIRF Centro Italiano per la Riqualificazione Fluviale — Italy

MedINA — Greece

euronatur

Succow Stiftung — Germany (2)

Chrońmy Mokradła — Poland

Pelkių atkūrimo ir apsaugos fondas — Lithuania

ZSL Let's work for wildlife

Sustainable Eel Group

WWT Wetlands for life — UK (3)

Lost sponge capacity – and resilience

- 35% of Europe's wetlands lost since 1970
- 70-90% of Europe's floodplain area ecologically degraded
- Wetlands, including mires, bogs and fens among most threatened ecosystems in Europe
- 60-70% of soils in the EU are not healthy
- Groundwater levels lowered dramatically

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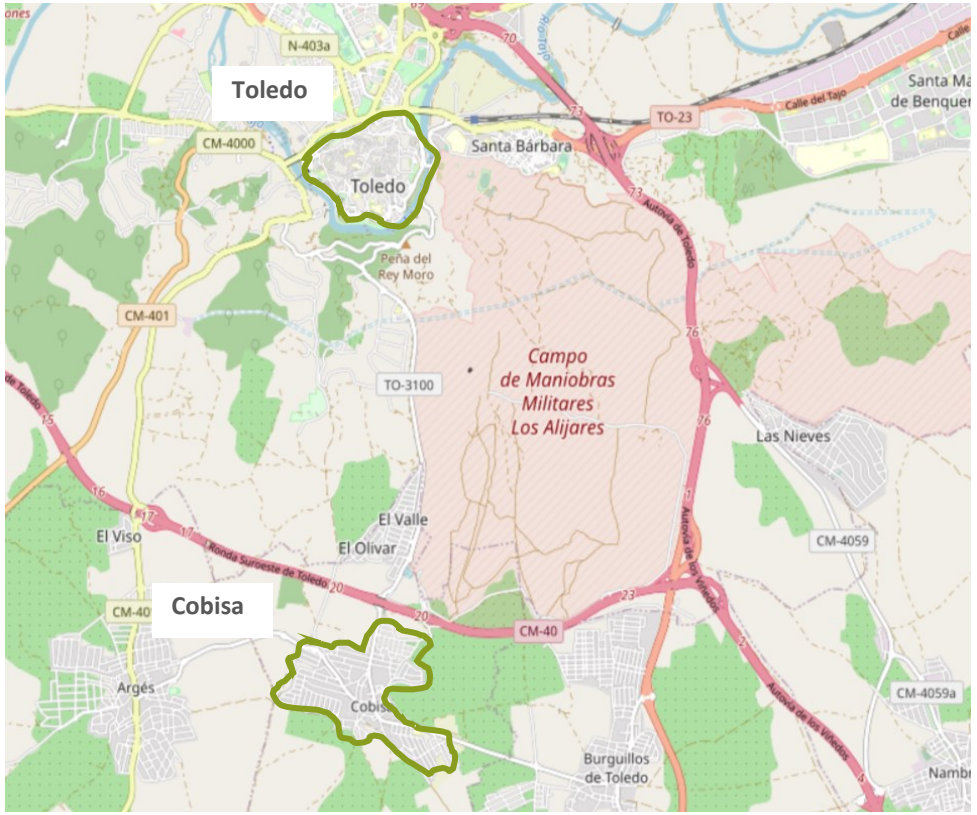
Dana flood event Spain – 3 September 2023

Damages approaching 300 million euros in Castilla-La Mancha, Toledo (UNESCO World Heritage Site)

Cobisa, a small village near Toledo



Source: La Tribuna de Toledo

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Cobisa land use change

Stream built over – now a street with name of stream!

1953: next to stream, riverbed respected without building, horticultural purposes and crops

2023: stream built over

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Source: Eduardo Butragueño twitter thread; Google Maps

Belgium, Germany, Netherlands Floods July 2021

- Deadliest flood in decades - 10th deadliest in the past 100 years
- +220 people died in Germany and Belgium
- Most expensive natural disaster in Germany estimated at €35 billion
- Worst devastation upper catchments
- Main Rhine river “hardly affected”

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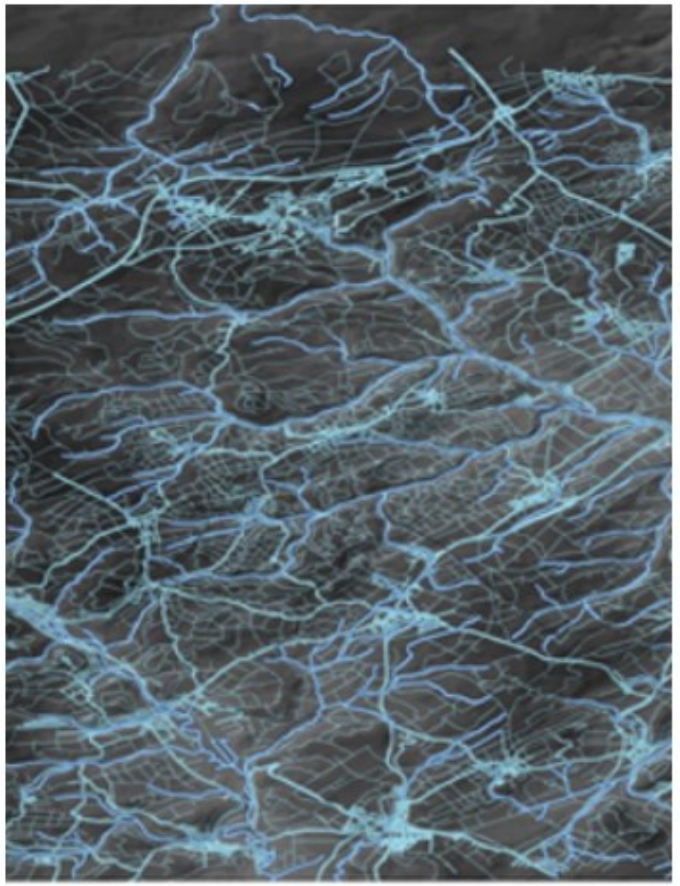
Landscape factors July 2021 Floods

Rhine & Meuse River Upper Catchments

58% of the upstream land area contributed 89% of the peak discharge downstream

Drainage contributed disproportionately to peak floodwaters downstream

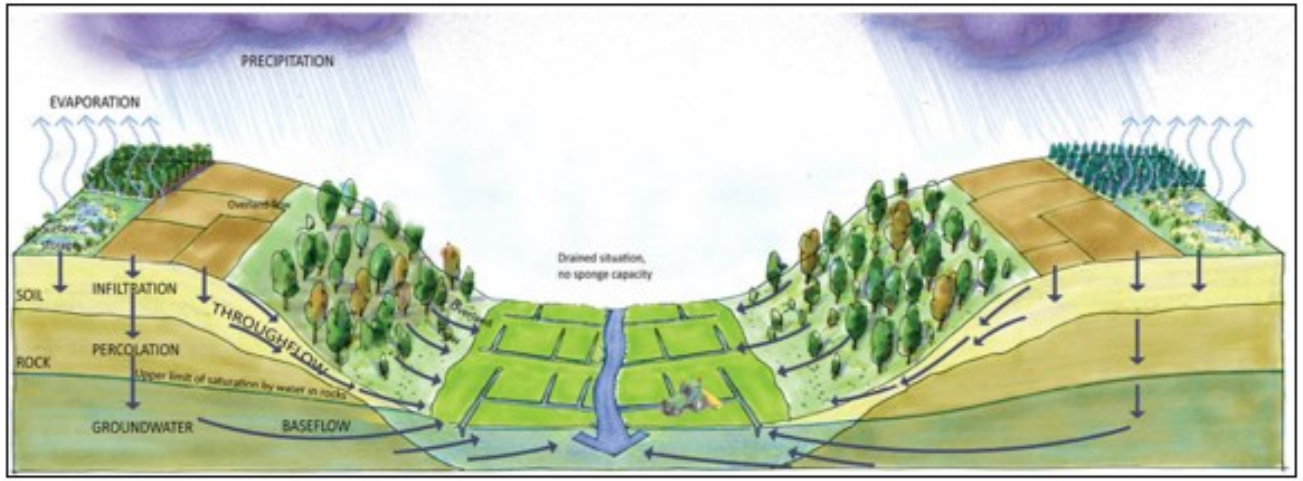


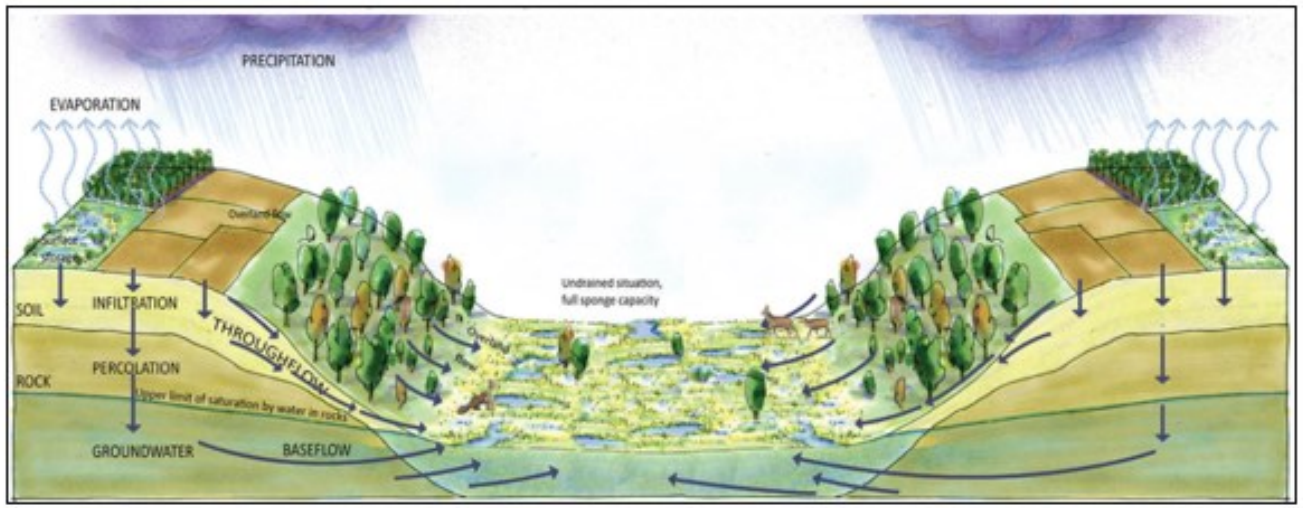
Paved surfaces were the main rivers channelling floodwaters downstream

Bare soils were a major contributor to floodwaters

Natural Sponges for protection against floods & droughts

Upper Catchments





Current

Man-made drainage, fast water discharge

Restored

Slow infiltration and discharge

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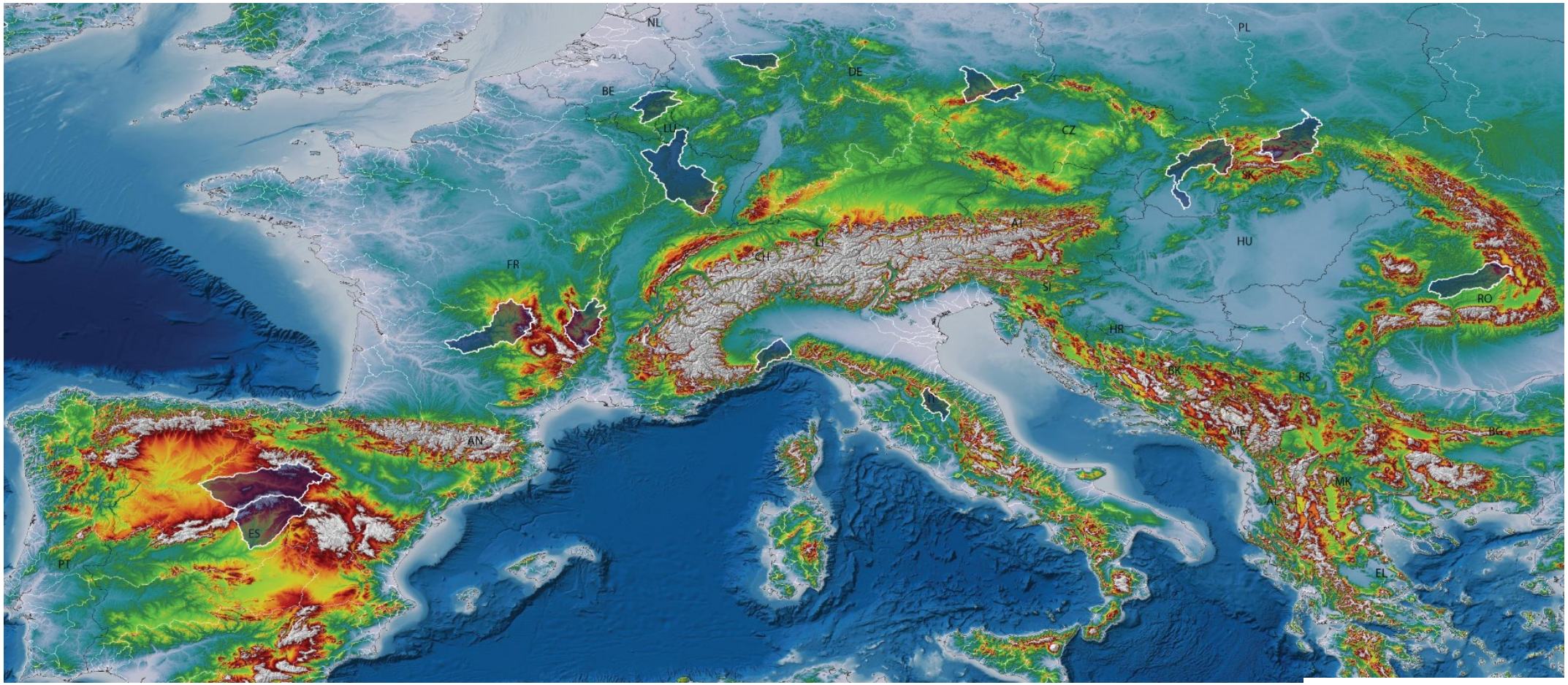
stroming
Consultants for nature and landscape development

WWF

High Sponge Restoration Potential - Middle Mountain regions



https://media.stroming.nl/sponges/

Source: land.Copernicus.eu

Natural Sponges Peer-Reviewed Research

Proven multi-benefit solution

- **Peak flow reduction:** up to **30%** at local scale (2% international)
- **Dry periods:** 20% higher baseflows
- **Water quality**: Substantial reductions N & P
- **Carbon Farming**: CO2 storage
- **Biodiversity**: improves status of endangered species and habitats

Could benefit 125,000 km2 Germany, France, Belgium, Luxembourg – when restoring 6% of upstream areas

water

MDPI

Open Access Article

Micro-Catchments, Macro Effects: Natural Water Retention Measures in the Kylldal Catchment, Germany

by Silke M. Nauta [1], Maarten J. Waterloo [2], Anouk I. Gevaert [2], Jos de Bijl [3] and Paul Brotherton [1,*]

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https://www.mdpi.com/2073-4441/16/5/733

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Horizon Europe Project Rewet

On the ground restoration Belgium

Stream Bêche

- Amblève catchment, Meuse River, watershed
- Drainage for plantation forestry

Measures

- Blocking drainage channels to slow flows & raise water table

Impact

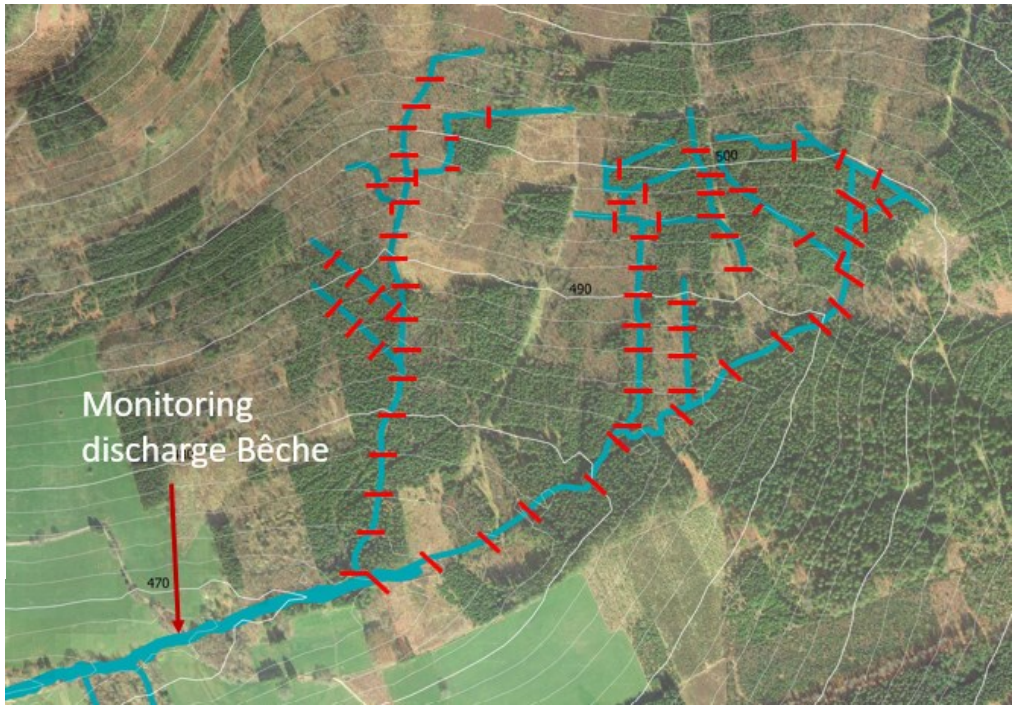
- Potential replication & upscaling in Wallonia

rewet

natagora

stroming
nature and landscape development

https://www.rewet-he.eu/



EU Strategy on Adaptation to Climate Change

EUROPEAN
COMMISSION

Brussels, 24.2.2021
COM(2021) 82 final

2.2.4. Promoting nature-based solutions for adaptation

Nature-based solutions are essential for sustaining healthy water, oceans and soils. They must play a bigger role in land-use management and infrastructure planning to reduce costs, provide climate-resilient services, and improve compliance with Water Framework Directive requirements for good ecological status. Using nature-based solutions inland, including the restoration of the sponge-like function of soils, will boost the supply of clean, fresh water and reduce risk of flooding.

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EU level action needed

Water Resilience & Adaptation to Climate Change

- **EU Water and Climate Resilience Law**
  - EU water reserves for catchments in stressed areas
  - Sponges Financing Facility
  - Efficiency and abstraction targets covering all users
- **Fully implement Green Deal**
  - Nature Restoration Law – national plans enhance adaptation
- **Climate Proof all new legislative acts**
- **Fully enforce & implement Water Framework Directive**
- **Eliminate harmful subsidies**
- **– drainage of wetlands**

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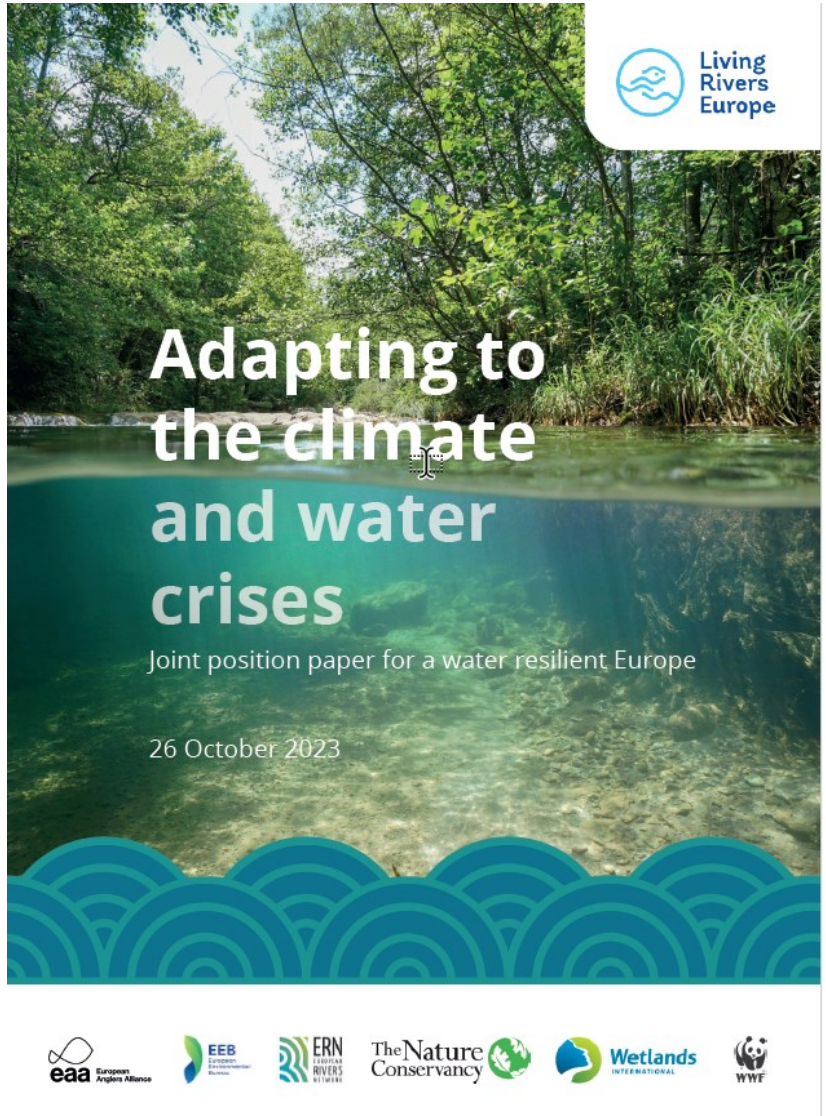

Thank You!

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https://naturalsponges.org/

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