

# What is river restoration?

“River restoration refers to ecological, physical, spatial, and management measures and practices aimed at restoring a more natural state and functioning of the river system in support of biodiversity and of several key ecosystem services, such as flood and drought risk mitigation, aquifer recharge, nutrient retention, recreation.

River restoration is an integral part of sustainable water management and directly supports the aims of the EU Water Framework Directive, as well as of national and regional water management policies”

# WFD: implementation gap

## River restoration efforts

- Implementation gap remains between current and good ecological status
- Imbalance: scale of pressures society has put on rivers has been massive, while restoration efforts have been mainly local
- More actions to improve ecological conditions at *water body scale*
- Upscaling needed to tackle enduring pressures on rivers and to change entire water body status
- Funding for large-scale interventions needed
- Basin approach: also address persistent pressures in the upstream catchment

# Case study: River Glaven, UK

## Small-scale restoration project

### *Pressures*

- Canalization
- Floodplain disconnection
- Damming and embankment
- Floodplain drainage

### *WFD / FD measures*

- Floodplain reconnection
- Removal of embankment
- Restoration of channel morphology

### *Impact*

- Enhanced habitat connectivity and heterogeneity
- Increased vegetation richness
- Increased invertebrate diversity in backwaters
- Increased density of brown trout



Figure 13. Re-meandered reach of the River Glaven at Hunworth: (a) In January 2009, prior to the rehabilitation project, on the left, and in December 2010, after re-creation of meanders in August on the right (source: modified by Champkin et al., 2018).

- But limited improvement in-channel bioindicators
- Need to improve water quality in upper stretches to reduce stresses on downstream biological communities

- the presence of standing waters in floodplains significantly enhanced biodiversity in the system

# Biodiversity Strategy

## Targets for restoration of freshwater ecosystems

- Biodiversity Strategy to support existing WFD requirements and go beyond

### Elements to consider:

- Restoring connectivity to improve and retain ecological functioning of the landscape
- Binding targets for restoration of wetlands and biodiverse water bodies overlooked by WFD
- Binding targets for free-flowing rivers
- Restoring natural stream functions and habitats permanently
- Ring-fenced funds for implementation of measures
- Role of Nature-based solutions