

# Enhancing River-Sea System Understanding by providing insights into headwaters – The Upper Danube Austria Supersite of DANUBIUS-RI

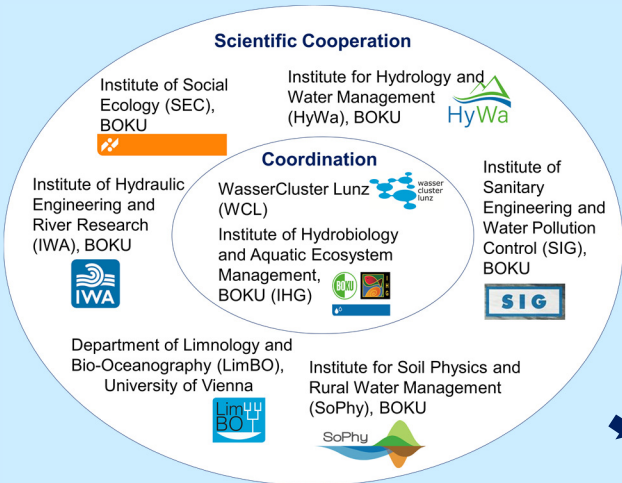
Eva Feldbacher<sup>1</sup>, Stefan Schmutz<sup>2</sup>, Gabriele Weigelhofer<sup>1,2</sup>, Thomas Hein<sup>1,2</sup>, and Supersite Consortium<sup>3</sup>

<sup>1</sup> WasserCluster Lunz – Biologische Station GmbH (WCL); <sup>2</sup> Institute for Hydrobiology and Aquatic Ecosystem Management (IHG), University of Natural Resources and Life Sciences, BOKU Vienna



## <sup>3</sup> Supersite Consortium

## Multidisciplinary Research Cooperation with Broad Expertise in



- Biogeochemistry and eco-hydrology of running water systems
- Role of aquatic ecosystems in global matter cycles (carbon/nitrogen/phosphorus)
- Effects of multiple societal drivers and pressures on hydrological processes and aquatic ecosystems
- Climate change effects on hydrological processes and aquatic ecosystems
- Aquatic biodiversity and its drivers at different spatio-temporal scales
- Restoration and conservation of fluvial landscapes
- Aquatic systems as coupled socio-ecological systems
- Catchment hydrology including characterization of flow paths and water transit times
- Water and energy balance calculations at different spatial scales
- Interactions between riverine landscape elements and water abstraction
- Groundwater ecology and biogeochemistry

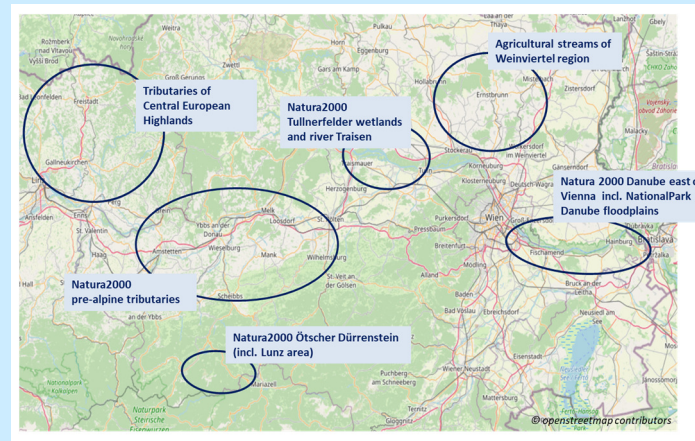
## Scientific cooperation aiming for:

Acquiring scientifically sound data through

- Experiments and laboratory work
- Continuous and event-based long-term observations
- Modelling and predictions of ecological, hydrological, and climatic changes
- A coupled socio-ecological approach

**Sustainable management and restoration of riverine landscapes in the Upper Danube catchment (WFD, FD, HD, Biodiversity Strategy)**

## Areas of Research in the Upper Danube catchment



## Selected Research Questions

### Danube Floodplains:

- What are the influences of connectivity (longitudinal, lateral, and vertical) on ecological processes (nutrient and carbon cycles and biodiversity) and ecosystem services?

### Pre- Alpine Tributaries and Headwaters:

- How do climate and land use changes affect ecological and hydrological processes, as well as matter fluxes between aquatic (surface and groundwater) and terrestrial ecosystems?

### Upper Danube Catchment:

- How are multiple (human) pressures affecting ecosystem services provided by our riverine landscapes?
- How effective are management measures and their combinations?
- What are socio-ecological perspectives and long-term perspectives of the riverine network of the Upper Danube?