



Free Flow Conference

Book of abstracts

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Prioritizing conservation and monitoring areas in the Danube River basin: Insights from the DANUBE4all project

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The Danube River basin currently lacks a comprehensive action plan for restoring its freshwater and transitional water ecosystems, despite some efforts to address continuum disruptions in upstream regions. The DANUBE4all project aims to address these challenges by identifying, selecting, and recommending implementation measures to increase the extent of free-flowing rivers throughout the entire basin. One of the specific objectives of the project involves identifying suitable habitats for both protected and invasive species, prioritizing conservation actions. To accomplish this, we initially modeled the habitat suitability of the fish species that inhabit the Danube basin. Fishes were chosen because they are good indicators for longitudinal connectivity. This modeling process involved spatially explicit species distribution models, which were trained using environmental data and information on species occurrences. Following the habitat suitability modeling, we conducted a spatial conservation planning analysis. This analysis aimed to pinpoint regions across the Danube River basin that are of high priority for future conservation and monitoring efforts. Priority areas were identified based on the presence of suitable habitats for fish species and the facilitation of longitudinal connectivity within the river system.

Comprehensive efforts towards improvement of the Danube inland delta water regime

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Within six LIFE projects (LIFE07NAT/SK/000707, LIFE08NAT/SK/000239, LIFE10NAT/SK/000080, LIFE12NAT/SK/001137, LIFE14NAT/SK/001306, LIFE17NAT/SK/000621) we worked on complex improvement of the Danube inland delta water regime. This extensive wetland area and important fresh water reservoir situated south-east from Bratislava, once an anabranching river system, was heavily altered by human interventions, including the Gabčíkovo hydropower plant construction. The inland delta ended up separated from the old Danube River bed, clogged with sediments, depending on one artificially built water supply. During more than two decades, Operational Manual promising regular simulated floods to compensate the disturbed hydrological regime was not being followed. Water scarcity failed to supply underground water reservoir, ensure humidity of floodplain forest soils or flush fine sediments resulting in clogging. We succeeded to start off again regular floods (yearly; spring and summer) with help of huge petitioning action covering 11,603 signatures forwarded to Minister of Environment and following numerous negotiations with relevant authorities, step by step achieving higher maximum discharge, longer culmination and earlier onset of floods beneficial for amphibian reproduction. The Danube inland delta is divided by transversal weirs, constructed to retain water in the system but minimizing flow dynamics and creating migration barriers at the same time. Based on complex expert studies aimed at improving lateral and longitudinal connectivity, concrete conservation measures were implemented here: 155.95 ha of wetlands restored by digging of channels, 24.788 km of river branches restored by removal of barriers and reconstruction of culverts and 225 m of steep river banks created for nesting birds by dredging.