

[Habitat rehabilitation in urban waterways: the ecological potential of bank protection structures for benthic invertebrates \(Weber et al. 2017\) \[1\]](#)

Compensating for the adverse ecological impacts of waterway development and improving their ecological functioning to achieve good ecological potential (GEP) have become mandatory within the European Union (EU). The technical rehabilitation measures presented here aim to functionally minimize the hydraulic impacts of navigation on aquatic biota in highly urbanized waterways. Their ecological functioning and potential to enhance biodiversity locally was assessed by comparing their macro-invertebrate community composition with nearby non-restored sites.

Rehabilitation led to lower hydraulic impact on the littoral zone, which in turn led to the presence of otherwise missing macrophytes and the occurrence of organic mud habitats colonized by invertebrates typically rare in urban waterways. While the control sites were dominated by few, mostly invasive taxa in vast numbers, the rehabilitated sites exhibited a highly diverse community with 22 protected mollusc and insect taxa typically found in the oxbow communities of natural rivers. This major improvement was however not detected using the core metrics of the legally required national assessment tools of the EU Water Framework Directive. Overall results proved the success of this type of rehabilitation measure with respect to improving biodiversity, but they also showed the limiting and key factors influencing the macro-invertebrate communities of highly deteriorated urban waterways. Indeed, future implementations of this type of rehabilitation measure should consider spatial extent, water exchange rates, temporal succession of vegetation and adaptive management to improve its ecological functioning.

Keywords:

Artificial shallow zones, Inland navigation, Hydrodynamics, Biodiversity, Native vs non-native taxa, Perloides

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