Assessing restoration effects on hydromorphology in European mid-sized rivers by key hydromorphological parameters (Poppe et al. 2015) [1]

The effects of river restoration on hydromorphological conditions and variability are often documented immediately following the restoration, but rarely properly monitored in the long term. This study assesses outcomes of 20 restoration projects undertaken across central and northern Europe for a comprehensive set of hydromorphological parameters, quantified at both larger and smaller spatial scales. For each project, we compared a restored river section to an upstream degraded section. Ten pairs of large projects were contrasted to ten similar but less extensive projects, to address the importance of restoration extent for the success of each project.

Overall, river restoration increased habitat diversity through changes in channel morphology. Our results indicated that restoration particularly improved macro- and mesohabitat diversity, but had a limited effect on microhabitat conditions, including the diversity of substrates. We found no significant difference in effects between large and small restoration projects. Our results reveal the need to assess hydromorphological parameters which reflect processes occurring at different spatial scales, including indicators of larger-scale hydromorphological processes such as bank erosion, to monitor restoration effects effectively and accurately.

Additionally, our results demonstrate the importance of developing terrestrial parameters, to assess the lateral dimension of river restoration.

Keywords: Restoration effect, Hydromorphology, Key parameter, Scales, Restoration monitoring

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Links
[1] https://reformrivers.eu/assessing-restoration-effects-hydromorphology-european-mid-sized-rivers-key-hydromorphological
[2] http://dx.doi.org/10.1007/s10750-015-2468-x

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