The role of benthic microhabitats in determining the effects of hydromorphological river restoration on macroinvertebrates (Verdonschot et al. 2015) [1]

Despite the large number of river restoration projects carried out worldwide, evidence for strong and long-term positive ecological effects of hydromorphological restoration on macroinvertebrates is scarce. To improve the understanding of the success and failure of restoration measures, a standardized field study was carried out in nineteen paired restored and degraded river sections in mid-sized lowland and mountain rivers throughout Europe. We investigated if there were effects of restoration on macroinvertebrate biodiversity, and if these effects could be related to changes in microhabitat composition, diversity and patchiness.

Effects were quantified for all taxa combined, as well as Ephemeroptera, Plecoptera and Trichoptera separately. Additionally, species trait classifications of microhabitat preference types were used as a functional indicator. Restoration had no overall positive effects on the selected macroinvertebrate metrics. Rather, we did find positive relationships between the macroinvertebrate responses and the effect of restoration on the diversity and patchiness of microhabitats. Furthermore, the effects on macroinvertebrates could be related to changes in the cover of specific substrate types in the restored sections. We conclude that the limited effect of restoration on macroinvertebrate diversity overall reflected, at least in part, the limited effect of most restoration measures on microhabitat composition and diversity.

Keywords: Benthic invertebrates, River restoration, Microhabitat, Diversity, Richness

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[1] https://reformrivers.eu/role-benthic-microhabitats-determining-effects-hydromorphological-river-restoration
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