Meander reconnection method determines restoration success for macroinvertebrate communities in a German lowland river (Lorenz et al. 2016) [1]

Re-meandering of degraded rivers is a frequently implemented measure in river restoration. A simple solution is reconnection of old meanders; however, its success likely depends on the reconnection method. We conducted a field study to analyze the benefits of a fully reconnected (fully opened meander, blocked main channel) and a partially reconnected meander (opened downstream, pipe bypass from main channel upstream, still open main channel) for macroinvertebrate communities in a German lowland river.

Immediately upon reconnection of the two meanders, habitat diversity, and macroinvertebrates were recorded for three years with sampling in spring and in summer each year. The results of a principal response curve analysis show that the macroinvertebrate community in the fully reconnected meander reflected main channel reference conditions after 1.5 years. The macroinvertebrate community composition was not improved relative to in-stream reference conditions within the partially reconnected meander, which could be attributed to the almost complete lack of flow changes that resulted in missing improvements of substrate diversity. Our results show that the meander reconnection method must sufficiently affect the basic hydromorphological requirements to achieve reference macroinvertebrate community composition. Measures including hydromorphological conditions are therefore recommended for employment in environmental management.

Publication Date:

Tuesday, 31 May 2016

Full reference:

Lorenz, S., Leszinski, M., & Graeber, D. (2016). Meander reconnection method determines restoration success for macroinvertebrate communities in a German lowland river. International Review of Hydrobiology.

Link to DOI:

http://onlinelibrary.wiley.com/doi/10.1002/iroh.201501823/full [2]

Links
[1] https://reformrivers.eu/meander-reconnection-method-determines-restoration-success-macroinve

REFORM has received funding from the European Union's Seventh Programme for Research, Technological Development and Demonstration under Grant Agreement no. 282656.

rtebrate-communities-german
[2] http://onlinelibrary.wiley.com/doi/10.1002/iroh.201501823/full

REFORM has received funding from the European Union's Seventh Programme for Research, Technological