Assessing Restoration Effects on River Hydromorphology Using the Process-based Morphological Quality Index in Eight European River Reaches (Belletti et al. 2018) [1]

The Morphological Quality Index (MQI) and the Morphological Quality Index for monitoring (MQIm) have been applied to eight case studies across Europe with the objective of analyzing the hydromorphological response to various restoration measures and of comparing the results of the MQI and MQIm as a morphological assessment applied at the reach scale, with a conventional site scale physical-habitat assessment method.

For each restored reach, the two indices were applied to the pre-restoration and post-restoration conditions. The restored reach was also compared to an adjacent, degraded reach. Results show that in all cases the restoration measures improved the morphological quality of the reach, but that the degree of improvement depends on many factors, including the initial morphological conditions, the length of the restored portion in relation to the reach length, and on the type of intervention. The comparison with a conventional site scale physical-habitat assessment method shows that the MQI and MQIm are best suited for the evaluation of restoration effects on river hydromorphology at the geomorphologically-relevant scale of the river reach.

Keywords: Fluvial geomorphology, River restoration, Hydromorphological assessment, Hydromorphological monitoring, Human impact

Publication Date:

Friday, 17 November 2017

Full reference:

Belletti, B., L. Nardi, M. Rinaldi, M. Poppe, K. Brabec, M. Bussettini, F. Comiti, M. Gielczewski, B. Golfieri, S. Hellsten, J. Kail, E. Marchese, P. Marcinkowski, T. Okruszko, A. Paillex, M. Schirmer, M. Stelmaszczyk & N. Surian (2018). Assessing Restoration Effects on River Hydromorphology Using the Process-based Morphological Quality Index in Eight European River Reaches. Environmental management 61: 69-84.

Link to DOI:

http://dx.doi.org//10.1007/s00267-017-0961-x [2]

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

Links
[1] https://www.reformrivers.eu/assessing-restoration-effects-river-hydromorphology-using-process-based-morphological-quality-index
[2] http://dx.doi.org//10.1007/s00267-017-0961-x

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