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Morphological changes of a restored reach: the case of the Spree River, Cottbus, Germany

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ABSTRACT

The main goals of the European Water Framework Directive (WFD) are the improvement of the ecological status of all water bodies by 2027 and continuous monitoring to prevent future degradations. When applied to rivers, the WFD considers hydromorphological elements only as supporting elements for watercourses at good or lower status, while biological elements are considered as fundamental. Nonetheless, various scientific studies have demonstrated that rivers need to be considered in a more holistic way, involving all their characteristics, principally water, sediment and biota. The aim of the present study is to demonstrate the importance of considering sediments during the WFD implementation cycles. To give a practical example, the case study of a restored reach of the Spree River near the city of Cottbus, Brandenburg, Germany, was chosen. The analysis proposed here utilized aerial images, DGMs and cross-section profiles for the pre -and post-project periods, giving information about the morphological changes due to the restoration works. Preliminary results show that the river morphology is affected by fine sand, transported in particular during high flow conditions. This study illustrates that if only biological parameters had been monitored as recommended by WFD then potential issues would not have been identified for the effective river management.