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Hydromorphological river restoration has been encouraged since the publication of the Water Framework Directive all over Europe in order to improve ecological status of running waters. Thus, numerous restoration operations occurred with various objectives: restoring ecological continuity, increasing river habitat heterogeneity, etc. However, it is often impossible to conclude on their efficiency because many of these operations lacked suitable monitoring or were wrongly designed.

In the past decade, several European projects have attempted to resolve this issue by analysing restoration outcomes of selected case studies. They have provided a set of good practices to insure more effective restoration. But, it is also necessary to better plan restoration projects from conception to implementation, to improve monitoring and thus understanding of processes sustaining restoration. These objectives rely on feedbacks from multiple projects implemented in various contexts and on long term duration.

Since 2010 in France, such an approach is realised as part of the demonstration sites network. Its implementation relies on state-of-the-art knowledge about streams restoration. This initiative, coordinated by the French Agency for Biodiversity results from a collaboration involving practitioners, stakeholders and researchers. It includes a selection of restored sites spread over the French territory: by 2020, between 60 and 80 sites are expected. This package comprises several key elements to allow good assessment of restoration efficiency. Notably, on these sites, a scientific long-term monitoring is applied following a BACI (Before After Control Impact) design and using standardised protocols for data collection. Guidance documents are published and largely diffused to support restoration approach at site scale. Projects meta-data are stored in dedicated tool. An objective of this network is also to increase manager's awareness by diffusing updated good practices of restoration.

If for the moment full results concerning restoration effects are not available, it is however possible to make a first appraisal of difficulties to cope with to implement such a promising approach. These feedbacks are precious in a context of promoting more integrated socio-ecological stream restoration.