Identifying ten critical points when implementing projects for restoration of ecological river connectivity: An interdisciplinary perspective

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Abstract

Projects aiming at restoration of ecological river connectivity are at the centre of an important controversy taking place in the French public arena for several years. The implementation of the national restoration policy is being put into question by several actors. Basing upon the work of an interdisciplinary group of researchers of the French Long-Term Socio-Ecological Research Network (Réseau des Zones Ateliers, CNRS), we first synthesize currently known biophysical and socio-economic effects of connectivity interruption in its longitudinal, lateral and vertical dimensions. Spotlighting the multitude of pressures riverine ecosystems are exposed to, the variability of territorial contexts and the associated uncertainties, we insist that the decision to restore or not to restore connectivity cannot be based exclusively on science and technical expertise. The (co-)construction of a restoration project should always be inscribed within a project of water resource management at the scale of a territory and accompanied by a democratic decision-making process. We identify ten critical points to take into account at different stages of restoration project implementation in order to collectively define ecological and societal objectives, choose most appropriate restoration measures, evaluate their effects in a robust way, and importantly, achieve projects that would be supported by the stakeholders and local population in spite of the associated uncertainties. We underline the importance of considering several spatio-temporal scales within restoration projects: historical versus future perspective, local versus regional, national or international scale.