Linking environmental flows to sediment dynamics (García de Jalón et al 2016) [1]

This is a policy discussion paper aimed at addressing possible alternative approaches for environmental flows (e-Flows) assessment and identification within the context of best strategies for fluvial restoration. We focus on dammed rivers in Mediterranean regions. Fluvial species and their ecological integrity are the result of their evolutionary adaptation to river habitats. Flowing water is the main driver for development and maintenance of these habitats, which is why e-Flows are needed where societal demands are depleting water resources. Fluvial habitats are also shaped by the combined interaction of water, sediments, woody/organic material, and riparian vegetation.

Water abstraction, flow regulation by dams, gravel pits or siltation by fine sediments eroded from hillslopes are pressures that can disturb interactions among water, sediments, and other constituents that create the habitats needed by fluvial communities. Present e-Flow design criteria are based only on water flow requirements. Here we argue that sediment dynamics need to be considered when specifying instream flows, thereby expanding the environmental objectives and definition of e-Flows to include sediments (extended e-Flows). To this aim, a hydromorphological framework for e-Flows assessment and identification of best strategies for fluvial restoration, including the context of rivers regulated by large dams, is presented.

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García de Jalón, D., M. Bussettini, M. Rinaldi, G. Grant, N. Friberg, I.G. Cowx, F. Magdaleno and T. Buijse (2016) Linking environmental flows to sediment dynamics. Water Policy.

Link to DOI:

http://dx.doi.org/10.2166/wp.2016.106 [2]

Links
[1] https://reformrivers.eu/linking-environmental-flows-sediment-dynamics-garc%C3%ADa-de-jal%C3%B3n-et-al-2016
[2] http://dx.doi.org/10.2166/wp.2016.106

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