

Belletti et al (2020): More than one million barriers fragment Europe's rivers. Nature.

The authors of this paper have shown, that across Europe, 0.74 barriers exist per river kilometer, which is a frightening number, regarding rivers as a main supporter of biodiversity.

By standardized walkover surveys, a total length of 2,715 kilometers (147 rivers) have been observed and it turned out that agricultural activities, river-road crossings, the extent of water surface and elevation are the main predictors for barriers.

The focus of this papers lays on small barriers, which have, in relation to their benefit, the highest impact on the ecosystem.

An impressive map shows the distribution and hotspots of instream barriers, where Central Europe shows the highest densities.

Against the assumption, that dams above 15 meters in height have the largest impact on longitudinal connectivity, the paper demonstrated that these account for less than 1% of all dams. Smaller barriers like bed sills against riverbed incision have a much higher share, for example in Siwtzerland, where about 100.00 of them have been mapped.

The authors claim that a paradigm shift is necessary in order to achieving the EU Biodiversity Strategy.

Hart et al. (2002): Dam removal: Challenges and Opportunities for Ecological Research and River Restoration

This paper is an approach for a risk assessment framework in order to understand how dam and watershed character lead to varying responses after dam removal. This framework should contribute to a more effective restoration method.

This is due to the fact, that knowledge about stressor-response relationships is still very sparse when it comes to dam removal.

The effects of dams and their removal is categorized using a matrix. Dam types (natural ones and human-made barriers and their sizes) are put into relation with the ecosystem attributes, namely flow- and temperature regime, sediment transport, biogeochemistry, biotic migration and habitat. From this matrix, the effects can be classified as "none", "small", "moderate" and "large". This effect reflects the magnitude of change in terms of the ecosystem attributes.

The authors pledge for a holistic and integrated scientific framework in dam removal to meet watershed restoration goals more effective.