

Title of the symposium:

Adaptive management of river barriers at times of climate change

Detail of organizer(s):

Responsible

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Symposium abstract

Rivers are some of the most threatened ecosystems in the world and a major focus of restoration programmes in Europe and elsewhere. A major challenge to achieving good ecological status, as required under the EU Water Framework Directive, is the reduction of fragmentation of river habitats caused by many thousands of barriers. Strikingly, the real number and location of barriers in Europe is currently unknown. Extrapolation from detailed national and regional surveys suggest there may be as many as 1 barrier for every 2 river km. In that context the H2020 AMBER project addresses the issue of river fragmentation in European rivers and seeks to apply adaptive management of barriers at multiple scales to achieve more efficient restoration of river connectivity. AMBER is building the first pan-European barrier database collating and harmonising existing institutional data at national and regional scales.

We present here some preliminary data on the distribution and typology of barriers at the pan-European scale. From the 48 national and regional barrier databases collated >260,000 barriers were identified. Of these, 60% of barriers could be attributed to one of six common barrier types whilst the remaining 40% were of unknown type; 62% were without height

attributes; <30% were without barrier, river or basin name and only 7% included information about installed fish passes. We show how the integration of barrier data with datasets on climate, stressors and socio-economic can be used to derive meaningful drivers of barrier density, from which barrier distribution can be inferred in countries and regions where data are scarce.

This approach allows the generation of a more realistic picture of river fragmentation at national and European scales and will provide a better assessment of barrier impacts on sediment, water and biota at times of climate change.

How your symposia will improve landscape ecology science?

Adaptive barrier management is needed if we are to restore river connectivity, regenerate watershed ecological performance and manage environmental risks.

Broad thematic areas

Broad thematic areas 1st choice: Future: scenarios and new landscapes

Broad thematic areas 2st choice: History, dynamic and transformations of landscapes

Free Keywords

River connectivity restoration, watershed ecological regeneration, environmental risk management, climate change mitigation

Outcomes of symposium

Special issue in a scientific journal (to be negotiated)