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Fragmentation of rivers worse than existing databases show

A new [peer-reviewed paper](#) shows existing databases of river barriers like dams and weirs in Great Britain underestimate stream fragmentation by at least 68%. Only 1% of the rivers in England, Scotland and Wales are free of artificial barriers. European scientists have indications that such figures can be found throughout Europe, making a case for the necessity of better adaptive management for barriers in rivers.

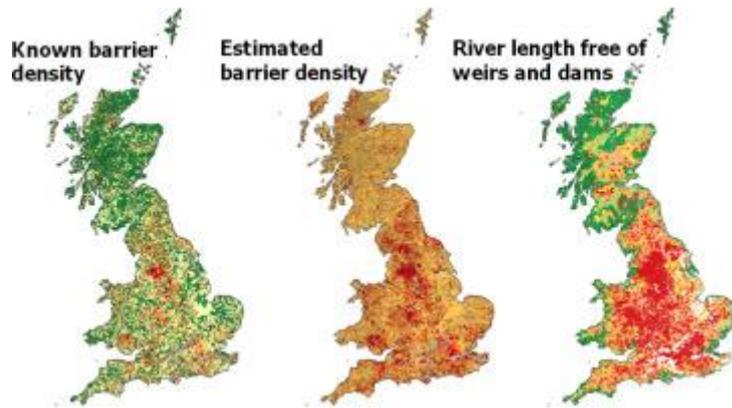
Artificial barriers are one of the main threats to river ecosystems, resulting in habitat fragmentation and loss of connectivity. Yet, the abundance and distribution of most artificial barriers, excluding high-head dams, is poorly documented. An EU Horizon2020 project called AMBER (Adaptive Management of Barriers in European Rivers) is currently mapping barriers throughout Europe, using existing national and institutional databases, as well as asking citizens for help. A mobile app, Barrier Tracker has been developed that people can use when they are outdoors and encounter a dam, weir, culvert or other man-made obstacles. The barrier tracker app can be downloaded via the App Store and Google Play.

“This is the first time that river fragmentation in Britain has been estimated with a comprehensive assessment,” says Dr. Joshua Jones, Postdoctoral Research Officer on the AMBER project at Swansea University. “We combined data from the official databases, and also went out to do some field surveys to assess and validate the official barrier data and maps and the results are rather shocking.”

The study indicates that 97% of the river network in Great Britain is fragmented and less than 1% of the catchments are free of artificial barriers. According to the project team, this proves that the issue of river fragmentation should be a priority for water authorities. Barriers have effects on the health of river systems and the lives they sustain, such as migratory fishes. Fishes such as eels, salmon and sturgeon are important migrating species that travel thousands of kilometres each year, along the same migratory routes, to reproduce and find food. The high number of barriers makes it increasingly difficult for migratory fishes to complete their journeys along their normal migration routes.

As mentioned earlier, AMBER is also working on creating a barrier atlas at the European scale. The team is planning to release the first map of recorded barriers in Member State rivers in November 2019. The study in Great Britain shows that the ambition for it to be complete will be a tough one.

“It’s really time that more people are concerned about their rivers,” says Carlos Garcia de Leaniz, principal investigator and coordinator of AMBER. “If we want to improve the situation, making the right priorities for restoration, we need to know where the barriers are located. This is an issue which is not just a concern of scientists or water managers. In the long run, it’s important for all of us.”



Pictures can be downloaded in high resolution at:

<https://www.sciencedirect.com/science/article/pii/S0048969719316511>

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Notes to editors:

- The study is part of the EU-funded “H2020 AMBER project” (<https://amber.international/>). AMBER seeks to raise awareness of the problems posed by stream fragmentation, the pressures on freshwater ecosystems, and the need for innovative solutions to restore river connectivity. The project is working with hydroelectric companies, water providers, NGOs, anglers and local authorities to restore river connectivity in a way that maximizes the benefits of water abstraction but reduces environmental impacts.
- The AMBER smartphone app is now available from the google play store & app store for IOS & Android (search for “**Barrier tracker**” in store) or can be or directly downloaded from:
 - iOS: <https://itunes.apple.com/al/app/barrier-tracker/id1246829944?mt=8>
 - Android: https://play.google.com/store/apps/details?id=com.natural_apptitude.amber&hl=en