

Reconnecting rivers

Restoring habitat connectivity from source to sea to improve wild fish populations

The problem

The UK's rivers are heavily impacted by artificial barriers

In England, **674 rivers** did not achieve good ecological status in 2024 because of "**barriers to fish migration and impoundments**"

Of the **7 freshwater fish species at risk of extinction** in the UK, barriers are explicitly mentioned as a driving factor in the decline of **4 species**

Only 1% of the UK's river network is completely free of artificial barriers. **Only 3.3%** allows unrestricted movement of aquatic species

There are approximately **0.75 barriers per KM** of river in Great Britain

WildFish have combined existing barrier datasets to create the **most complete inventory of river barriers in the UK to date.**

Over 70,000 river barriers were identified, the **majority of which (87%) were artificial man-made obstacles.**

Overall, most barriers in the UK are small, with average heights under 1 meter, but **fish passes are rare** (less than 1% prevalence), indicating significant obstacles to fish migration.

The impact

Effects of barriers on wild fish & water quality

Preventing movement of aquatic organisms

- Physical obstructions cause **fragmentation** of river networks, leading to **isolated populations, reduced genetic diversity** and **increased vulnerability to local extinctions**.
- Diadromous fish, such as Atlantic salmon, sea trout and European eels **rely on unobstructed pathways** to migrate between freshwater and marine environments to complete their lifecycle. The loss of habitat connectivity can lead to **reduced breeding success, habitat fragmentation** and **increased competition**.
- Urban areas with numerous small river barriers can have a **cumulative effect**, as not all fish will be able to successfully pass a barrier, so multiple small barriers prevent a **larger percentage** of fish from traversing the obstacle compared to one large barrier.

Changing water chemistry and natural processes

- Barriers **alter natural flow conditions** and can act as **sinks for pollutants** by trapping them in sediments that accumulate in upstream impoundments. Pollutants such as **heavy metals** and **persistent organic pollutants (POPs)** are non-biodegradable and can remain in sediments indefinitely. When barriers are removed, these pollutants can be remobilised.
- River barriers disrupt the **natural sediment dynamics** of river systems. This can lead to **increased sedimentation** upstream and **nutrient depletion** downstream.
- River barriers also **influence water temperature**. Smaller barriers (such as those predominantly found in the UK and Europe) often release warmer surface water, which can lead to **altered species composition** and **higher rates of eutrophication**.

The solutions

Future solutions for river barriers

1

Complete removal

Academic studies and conservation projects conclude that complete removal is the most effective way to mitigate negative environmental impacts, particularly when barriers are no longer in use.

2

Fish passes

Fish passes are a solution in situations where complete removal cannot be achieved.

Despite not being 100% effective for fish migration, it's important every immovable barrier has one.

**Help us restore
habitat connectivity
from source to sea
to improve wild fish
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