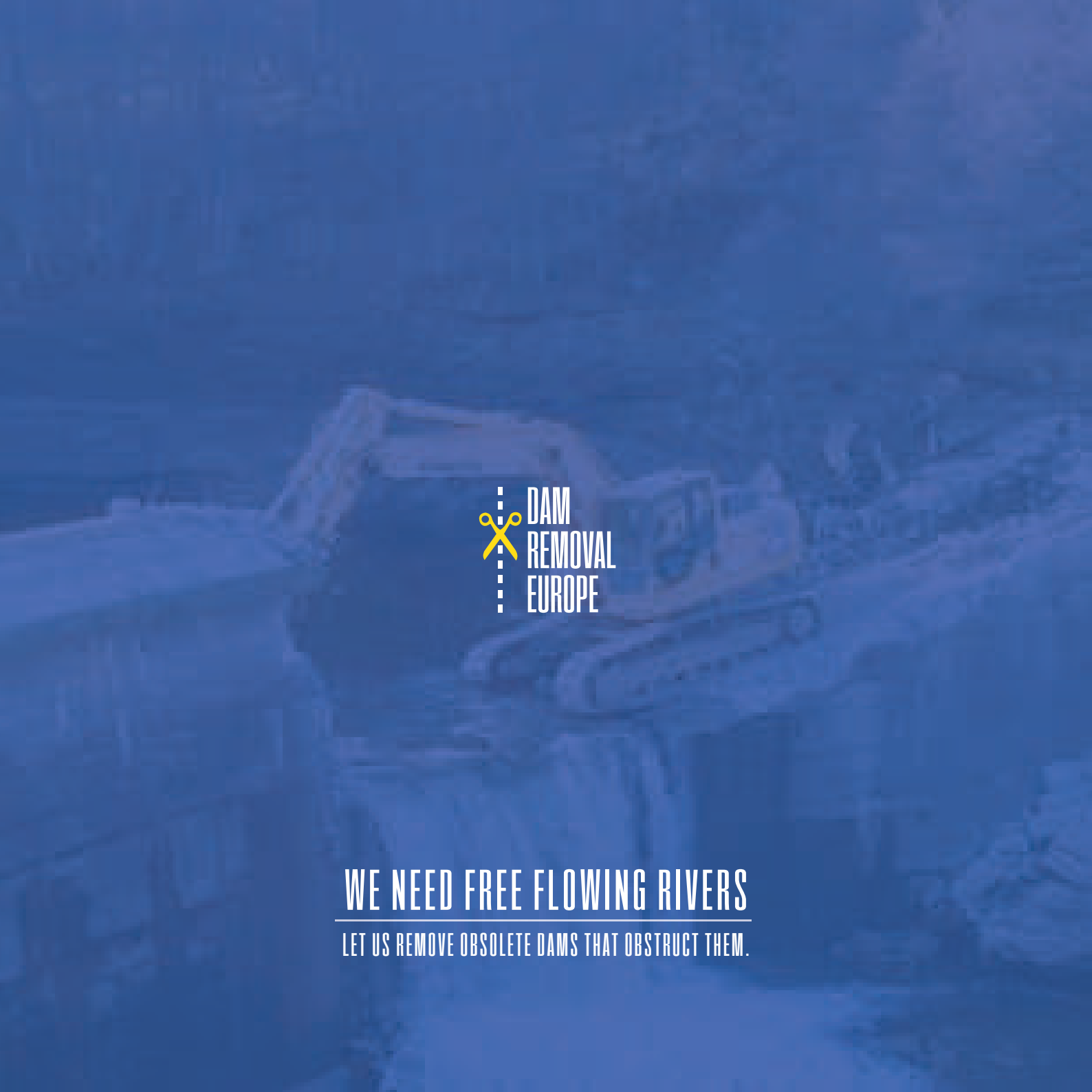

DAM
REMOVAL
EUROPE
WE NEED FREE FLOWING RIVERS
LET US REMOVE OBSOLETE DAMS THAT OBSTRUCT THEM.

Dam Removal Europe: a civil society movement to restore our natural rivers.

Dam Removal Europe (DRE) is a network of 6 organizations: WWF, World Fish Migration Foundation, European Rivers Network, The Rivers Trust, Karlstad University and Normandie Grands Migrateurs. Our ambition is to restore rivers by removing inefficient dams in order to have once again healthy free flowing rivers, full of fish, offering precious ecological services. Therefore, it's not a question of good or evil, but of balance between people and nature. In order to be successful, we need to join hands and ensure that dam removal becomes common practice in Europe.

www.damremoval.eu

A lasting heritage a dam building on our European rivers.

Dams have been erected to improve living conditions since the birth of agriculture, 7000 years ago. They have also been built to produce energy, store water, facilitate navigation and, in rare cases, to manage floods. Nowadays hundreds of thousands of small and big barriers fragment our European rivers and therefore are a major cause of water deterioration, habitat disconnection and loss of plant and animal species.

Dams and barriers really harm our watercourses.

We need living, free flowing rivers. Science has demonstrated that dams, barriers and their related infrastructures lead to severe hydro-system alterations. Dams stop fish migration, block sediment transport, alter river flows downstream and the fluvial landscape. In some cases, dams increase flood risk. If individual dams have their impact, it is especially the large numbers of dams in the same river that chokes our watercourses. That's why we must enter progressively into a period of rivers restoration by removing old dams all over the world.

A large variety of structures, in staggering numbers

We find in Europe large and small hydropower dams, weirs, barriers, old mills, rip rap, dykes. For example in Switzerland only, more than 180,000 barriers over 0,5 meters have been registered. In the United Kingdom more than 22,000 man-made obstacles artificialize rivers. In France, 83,795; in Sweden, 9,298; in the Duero Basin in Spain 3,746 barriers are located and this number is thought to be twice as big. All of them seriously impoverish the watercourses life, and many are useless.

They can and must be removed due to four main reasons:

1 **Safety.**
All dams have a functional lifetime, and it is therefore relevant to review all unused, non-functioning or abandoned dams, to avoid hazards arising from dam failures.

2 **Existing legislation.**
The 2000 Water Framework Directive obliges member States to achieve "good ecological status" in all water bodies by 2027. So, restoration of rivers continuum is fundamental.

3 **Economics.**
It has been demonstrated that dam removal is generally much cheaper than repairing old dams or constructing fish passage structures, Moreover, studies show that, in some rivers, the loss of income caused by the end of fishing can be greater than the value of hydropower.

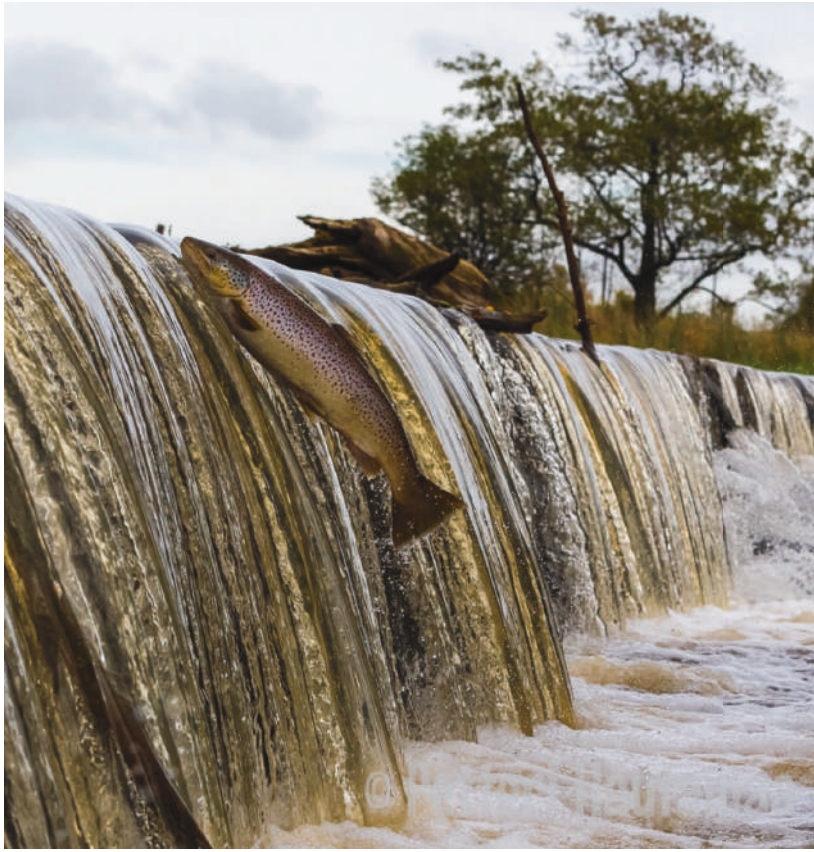
4 **Environment.**
Dams impact every aspect of healthy rivers, transformed into series of impoundments. Hydro and sediments dynamics are severely modified, causing channel erosion downstream and incision upstream. Nutrients and sediments stop feeding downstream rivers and deltas.

Hydro-electricity: a green myth and a continuing threat for the last free flowing rivers.

Around 50 % of the existing dams in Europe have been built for hydropower purposes. Hydropower is not a clean source of energy as it is regularly promoted. Hydroelectricity is not ecological, it is just renewable. On top of the negative effects, hydropeaking, the sudden release of water flashes, is incompatible with rivers natural equilibrium. Moreover, the reservoirs emit greenhouse gases. All of these effects are nowadays common knowledge. Nevertheless new structures are still being planned all over Europe, especially in the Alps and the Balkans.

A massive biodiversity decline due to dams: the loss of migratory fish

Dams, small and large, alter or block fish migration. They turn dynamic flows into reservoirs of stagnant water with the loss of habitats and reproduction sites. Therefore, all over the world, Salmon, Eel, Shad, Lamprey, Sea trout, Sturgeon are disappearing. In the Rhine catchment, the salmon population has dwindled from 1 million to 0 in the 19th century. Fish ladders can just mitigate the problem and the accumulation of obstacles hinders their collective efficiency. To really improve fish migration, the best choice is to remove ageing structures.



Good news : there are now better options than maintaining all dams.

In many cases, dams are necessary. But nowadays, there are better options to provide electricity : solar and wind energy are cheaper and less harmful. Domestic and industrial sectors waste less. Organic farming, drip irrigation have proved their efficiency. Restoring floodplains is used more and more to prevent floods and help become more climate change resilient. With these alternatives in hand, we can replace numerous barriers with smart solutions that didn't exist 50 years ago. This is good news for our living rivers!

Promising examples of dam removal in the world.

We need to restore our rivers continuity. The United States are the first to get rid of outdated dams. In the past years, 1200 structures have been removed. The most spectacular success is the removal of two large dams (35 and 60 meters high) on the Elwha River. Consequently, thousands of Pacific salmon have returned after a century of absence. On the Touques River, in Normandy, 5,000 sea trouts are back after a series of dam removals. When freed, rivers recover their original bounty and generate a new sustainable economy, with recreational fishing, whitewater, hiking, the return of small farmers.

To view more case studies, go to:
damremoval.eu/case-studies

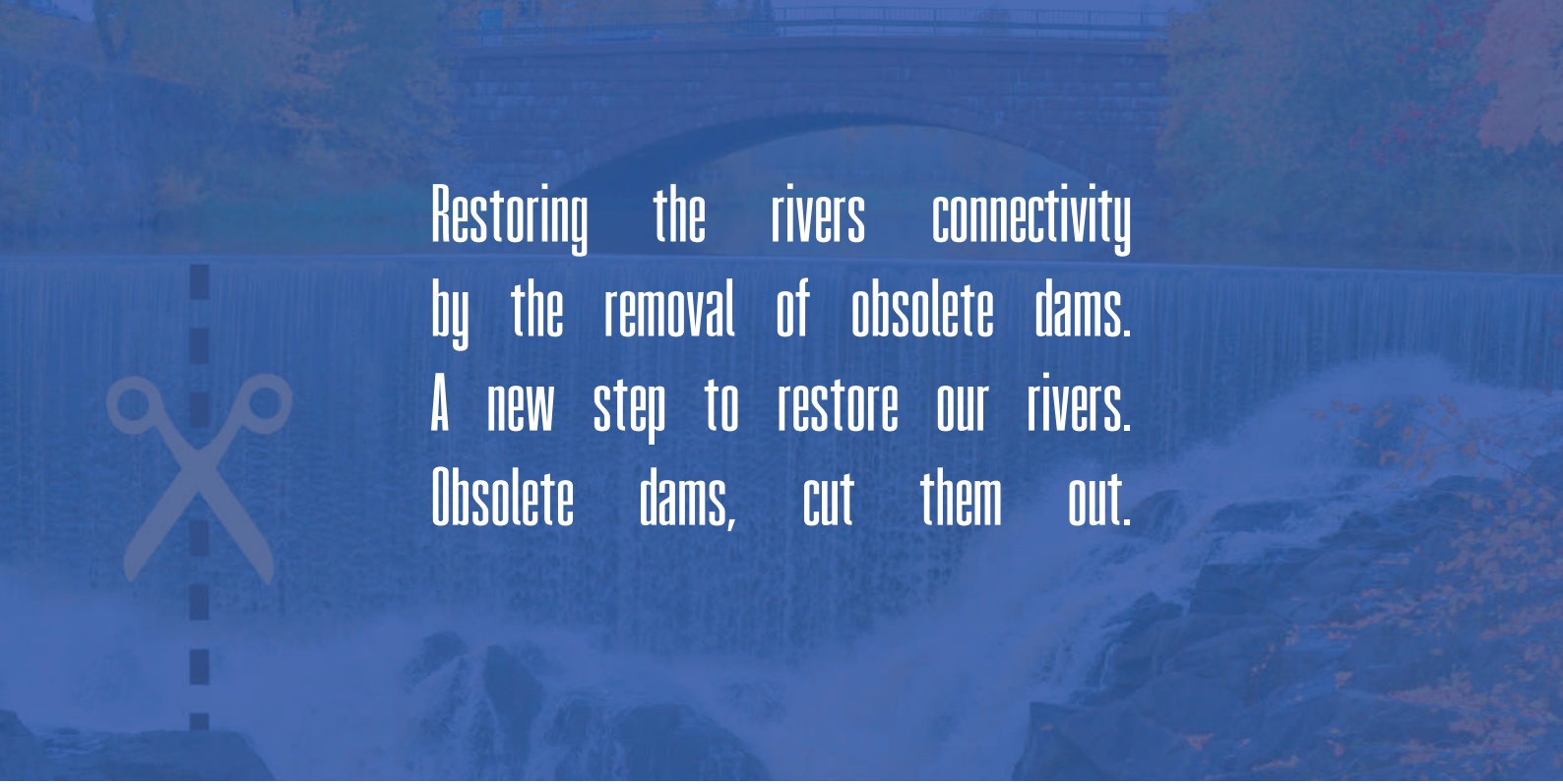
In Europe, numerous dam removal and river restoration programmes.

The European Water Framework Directive is an excellent tool to promote rivers restoration. By 2027, the “water bodies” in Europe must reach a “good ecological status”, which reinforces restoration of our rivers continuity. In France, 1.842 small structures have been removed in the past years. The country plans to remove two of the biggest dams ever removed in Europe, on the Sélune basin, Vezins and La Roche qui Boit and will completely reshape the old Poutès dam on the Upper Allier. Sweden has removed 1404 dams and barriers, Spain, more than 200. Thousands more are waiting for removal, with a strong benefit for rivers, biodiversity, rural and urban communities.

To view all the removed dams in Europe, go to:
damremoval.eu/dam-removal-map-europe

Removing obsolete dams: a complex and participatory process.

Removing dams is a complex issue. Old structures are sometime of great cultural interest. They belong to the landscape, to the spirit of the local people. Therefore, we need vision, good science, solid economic analysis, political boldness and strong support of the people, institutions and companies for success. A steady participatory process with communities is essential in order to generate an adequate and lasting restoration project. The reward is worth the effort: dam removals bring back self-sustaining ecosystems and can be an excellent investment for the rural economy.



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ERN European Rivers Network

WORLD FISH MIGRATION FOUNDATION

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