

CASE STUDY: LEAKY DAMS OF ALL SHAPES AND SIZES - WEST CUMBRIA RIVERS TRUST

OVERVIEW

West Cumbria Rivers Trust is working on four major natural flood management (NFM) projects that aim to help reduce flood risk to Keswick, Cockermouth, Flimby and Bootle. A wide range of landscape features are being installed to slow run-off and temporarily store water in the landscape for longer during storms. The projects are part of DEFRA's £15 million National NFM Programme, which also aims to trial different types of intervention and monitor how effective NFM can be.

ABOUT THE SCHEME

One measure being used in all four areas is leaky dams. These may be called in-stream obstacles or large woody dams depending on their design but they all have the same purpose: to hold back water during high flows and reduce the downstream flood peak. By adapting the design of leaky dams they can be used in any landscape.



Image: West Cumbria Rivers Trust

In ditches draining productive agricultural land, West Cumbria Rivers Trust has installed small leaky barriers. These allow normal flows to pass unimpeded so they do not affect drainage, but hold water back in high flows. The dams are lower than the bank of the ditch so they will overtop before forcing any water onto the surrounding farmland. Although each dam only holds and slows a small amount of water, a large number can be installed, adding up to a large amount of water storage. Check out a video of these dams working:

www.facebook.com/westcumbriariverstrust/videos/3205891256093210/



Image: West Cumbria Rivers Trust

In a woodland area, logs and branches have been secured across the stream to push high flows into the surrounding wood where it can be stored and will slowly infiltrate into the soil. These leaky dams have a natural appearance and mimic fallen trees.

On steeper streams, creating barriers might not be appropriate because of the energy of the water. In these

cases, 'kerplunk' trees have been used; a random arrangement of logs secured in place across the stream. As these logs are leakier they have lower forces acting on them but they add 'roughness' to the channel, slowing down the water and storing it within the structure.

Leaky dams can be as varied and unique as rivers are. Each type of dam is being monitored using photographs and recordings of the water level. Although some dams will hold more water than others, every dam of every type will contribute to reducing downstream flood risk.



Image: West Cumbria Rivers Trust