

# Water Management on your Farm: Re-connection to Floodplain



**Farm  
Advisory  
Service**

National Advice Hub  
T: 0300 323 0161  
E: [advice@fas.scot](mailto:advice@fas.scot)  
W: [www.fas.scot](http://www.fas.scot)

As climate conditions continue to change the sustainable management of water on farm is of great concern for many land managers around Scotland. From unprecedented wet weather to drought conditions, farms need to become resilient to ensure that they can try to minimise the impact of these changing weather patterns on land.

## Re-connection to Floodplain

### Impacts of Straightened Rivers

The straightening of a river stops it adapting to fluxes of water volumes. Flooding impacts are intensified, typically in more densely populated areas as the water travels quickly downstream. The higher volumes and velocity of water travelling downstream can also make the riparian zones lower in the catchment more susceptible to erosion, losing habitat whilst inputting excess sediment to the river, increasing its turbidity.

The artificial flow of a straightened river means that naturally occurring wetlands, scrapes and other floodplains lose their connection with the river. This loss of habitat leads to a simpler river system that declines the biodiversity of the surrounding area. Other biodiversity losses seen through river straightening include the reduction of riparian vegetation reducing river temperatures, which subsequently has detrimental impacts to fish populations and other species.

### Climate Change

Climate change in Scotland means an increase in precipitation and more water than ever is entering catchments during winter months. If no action is taken; the problems of flooding and biodiversity decline are going to accelerate. Reconnecting rivers to their natural floodplains can increase its resilience to climate change, benefiting the wider catchment, biodiversity, and the local communities who live and work in it. It can also regenerate the lost riparian habitats such as wetlands and act as a solution to the current problem of biodiversity decline.

### Solution - Embankment Breaches

Straightened rivers can be reconnected to their floodplains through removal, lowering or breaching of embankments. They can be low cost and low maintenance solution to flooding in a catchment. The new wetland areas act as natural flood defences and can lower downstream flooding by storing some water that would otherwise flow immediately downstream in a straightened river. Embankment breaches can take the form of actual earthworks where all or part of the riverbank is removed, or less involved changes like creating smaller breaches in the embankments and adding large woody debris to encourage water to flow laterally.

Creating more natural riparian zones can help support soils, biodiversity, productivity and carbon capture throughout a river catchment. The slower flow rate of non-straightened rivers lowers the threat of soil erosion to both banks. The lowering or removal of embankments allows for the creation of wetlands that are important breeding grounds for certain species of birds or insects. The slower flow of a meandering river also creates more habitat for aquatic species who need slower river flows for their young to mature in.

## Case Study: The Delliefure Burn Project, Cairngorms National Park

### Spey Catchment Initiative, Cairngorms National Park, The Macallan

The Delliefure burn was historically straightened and embankments constructed along it. The project was part of a wider catchment management project to improve the natural functioning of river corridors and potentially reduce flood peaks. Once the site was identified, the project was carefully designed in coordination with the estate and farmer. It created a mosaic of habitats with no loss of useable land to the farmer whilst smoothing out the peaks and troughs in the hydrology of the river.

#### Highlights of the Project:

- The project increased biodiversity through wetland creation and wader scrapes.
- Habitats were enhanced by keeping the existing grazing regime as grazing on the wetlands inhibits successional changes and tramping of soil creates habitat for waders' chicks.
- Site selection involved stakeholder groups in catchment including [Strathspey Wetlands and Waders Initiative](#) who have monitored the site declining wader population.



Learn about the project and [watch the FAS video](#) with Penny Lawson from the [Spey Catchment Initiative](#) and Lewis Pate from the [Cairngorm National Park Authority](#).



More Information on the process of embankment removal, watch [SCOTLAND: The Big Picture - The Delliefure Burn Project](#) and read [Spey Catchment Initiative's project report](#).