

Further Information The links below provide detailed information on flood management, risk and natural water retention.

Description	Authority / Author	Link
Irish flood maps	OPW	www.floodinfo.ie
Flood Risk Mgt Plan for North West	OPW	https://s3-eu-west-1.amazonaws.com/docs.floodinfo.opw/floodinfo_docs/Final_FRMPs_For_Publication/FRMP_Final2018_RiverBasin_01.pdf
NFM	Friends of the Earth	https://www.foe.ie/documents/natural-flood-management-adopting-ecosystem-approaches-to-managing-flood-risk/
Catchment Based Approach	Environment Agency UK	www.catchmentbasedapproach.org/resources/flood-management
Natural processes Evidence Directory	Various	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/681411/Working_with_natural_processes_evidence_directory.pdf
River restoration techniques	River Restoration Centre, UK	http://www.therrc.co.uk/manual-river-restoration-techniques
NFM Guide for farmers	Yorkshire Dales Rivers Trust	http://www.yorkshiredalesriverstrust.com/wp-content/uploads/2017/11/NFM-handbook-WESBITE.pdf
NWRM in EU	European Commission	http://nwrw.eu/

About Inishowen Rivers Trust

The IRT is a charity dedicated to the conservation and rehabilitation of the rivers and natural water bodies of Inishowen. The IRT covers an area of approximately 900km² and includes the estuarine and coastal areas of the district

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Inishowen
Rivers
Trust

Connecting Communities,
Valuing Our Waters & Wildlife

**Flood Management &
Natural Water Retention**

Flood Management



Flooding can occur from a range of sources such as coastal flooding, flooding from rivers, overland flooding (after intense rainfall, blocked drains) or groundwater flooding. The type of flooding and where it occurs will determine how the flood risk is managed. Flood risk management in Ireland is nationally co-ordinated by the Office of Public Works (OPW) who produce flood maps and risk assessments.

Measures to reduce flooding fall into two basic categories – hard engineering solutions and soft engineering solutions.

Solutions need to be looked at from a catchment based approach - looking at the whole landscape taking into account factors such as geology, land management practices, location of settlements etc.

Soft Engineering

These are natural techniques that slow the flow or store water

- Tree planting & Buffer Strips
- Restoring meanders
- Reconnecting to a floodplain
- Leaky dams
- Offline storage ponds

Soft engineering measures can be referred to as natural water retention measures, natural flood management or green infrastructure. They have multiple benefits for the environment, not only helping to alleviate floods but also improving water quality and biodiversity and potentially making catchments more resilient to the impacts of climate change. More evidence is needed to establish the effectiveness of natural measures during large flood events.

Soft and hard engineering measures can complement each other

Hard Engineering

These are hard, structural solutions used particularly to protect built up areas downstream:

- Walls & Rock Armour
- Concrete culverts
- Dams
- Dredging and widening
- Flow diversions
- Embankments

Hard engineering solutions are often used in built-up areas as they provide an immediate solution and carry the water away quickly. They are generally expensive to implement and reduce the amount of habitat available for biodiversity wildlife.

Natural Water Retention



What is natural water retention?

Healthy river catchments naturally store water in the landscape slowing the flow of water downstream. We can use natural processes to store water for periods of drought and to hold water during floods.

How does it work?

The design and construction of appropriate natural water retention measures is critical to their success. Every catchment is different and what works in one catchment may not work in another. It is vital that the measures employed are sustainable and managed. Good communication between communities, agencies and contractors is a key factor for successful projects.

The key mechanisms used in natural water retention measures are:

Increase water storage

- Create temporary storage using storage ponds, back channels, leaky dams
- Reconnect the river with the floodplain, peatland restoration

Increase catchment and channel roughness

- Slow the flow by planting trees and hedgerows

Increase the amount of water that drains into the ground

- Improve soil structure
- Install SuDS (Sustainable Urban Drainage Systems)

De-synchronise flows

- Slowing down one tributary compared to another

What are the Benefits?

- Improved water quality
- Increased number and diversity of habitats
- Increased fauna and flora
- Increased carbon sequestration
- Helps filter pollution, reduced nitrates

