

# Water Quality in Carlow Community Information Meeting – 11<sup>th</sup> February 2026



# Meeting format

- Introduction to Water Quality – Fran Igoe
- Drummin Bog Restoration – Jules Michael
- Water Quality in Barrow and Slaney – Ruth Hennessy
- Community Actions in Carlow – Maggie Morrissey
- Open Discussion/Q&A



# Protecting water quality brings many benefits for Irish society



# Value of water



Marine tourism



Angling tourism



Outdoor recreation



International market reputation (Origen green)



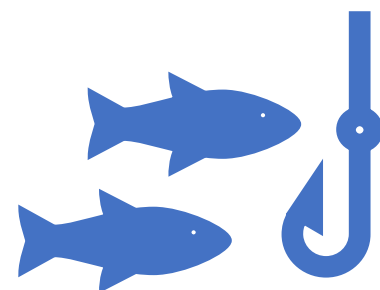
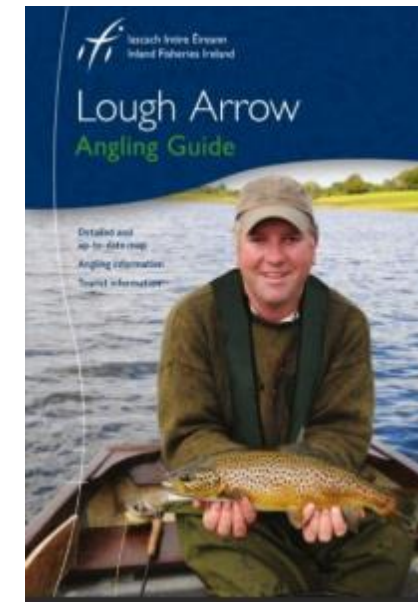
Industry / processing



Drinking water



...really its' difficult to put a price on clean water

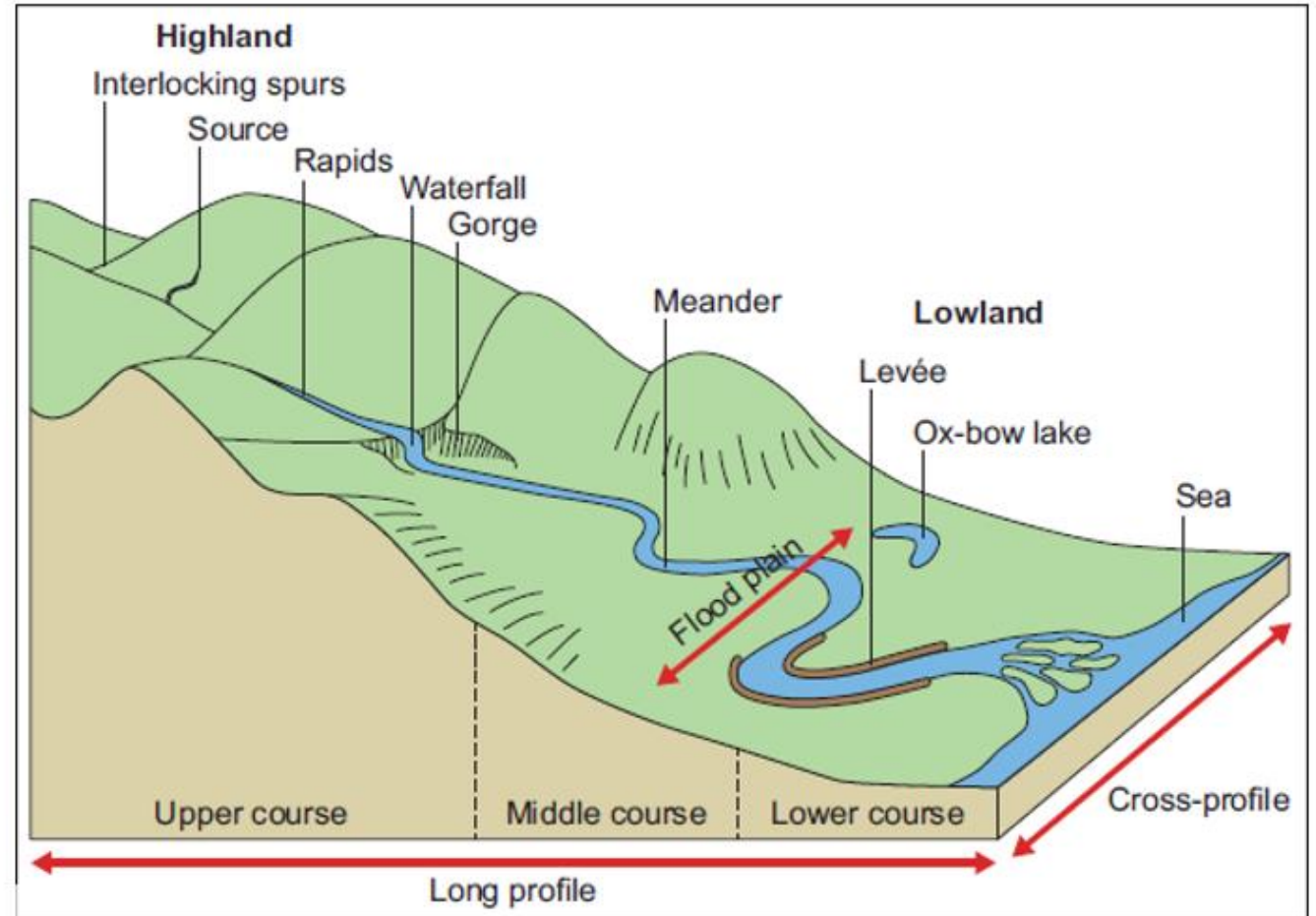


*Economic and Social Research Institute (ESRI) and their 'Angler Panel' project, suggests that over 327,000 adults resident in Ireland like to fish and that Irish anglers alone spent an average of €630m a year on their fishing between the years 2018-2020\*.*

*\*Socio-economic Study of Recreational Angling in Ireland*

# Understanding Irish Rivers

- Flow
- Slope
- Shape
- Soil / rock (substrate)
- Vegetation
- Type of human activity



# Local Authority **Waters** Programme

vibrant communities | catchment assessment | healthy waters



If we don't take a balanced approach to managing our river – its leads to problems

- Pollution
- Increased flood risk
- Loss of amenity
- Impacts on the local economy
- Biodiversity / Wildlife
- Can even affect housing provision



# What kind of problems? ...some examples



# Urban pollution sources



Wastewater

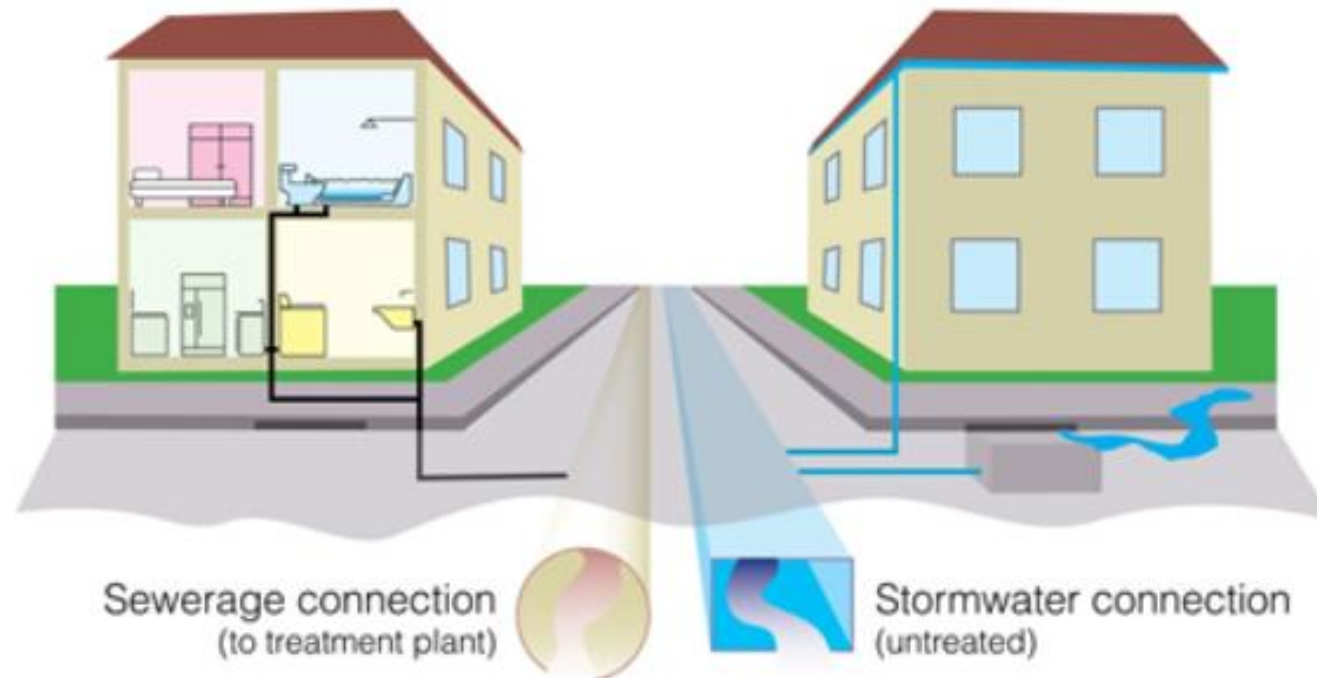


Septic tank



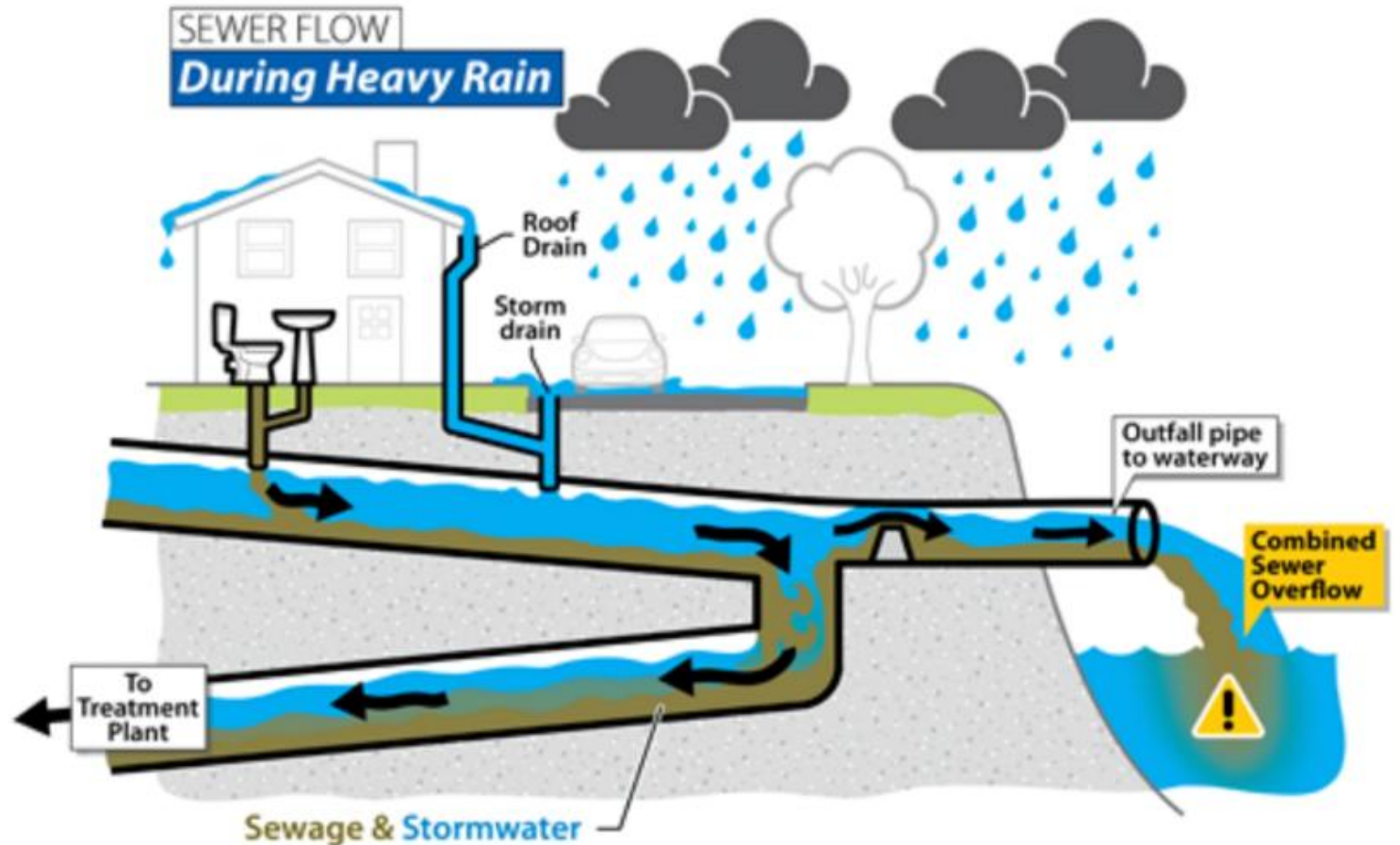
# Sewage and stormwater networks in housing developments

The difference between stormwater & sewage connections



# Older systems stormwater and sewage use the same pipes

Combined sewer



Courtesy of Uisce Éireann

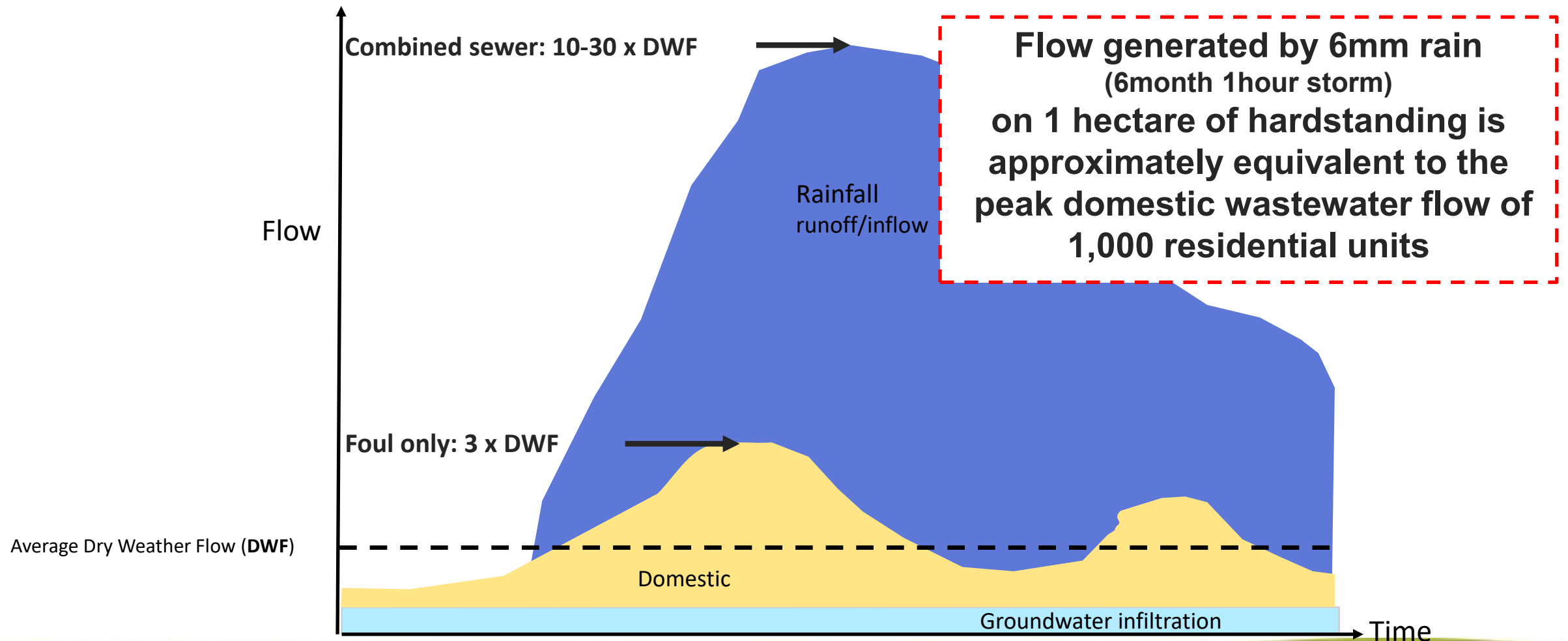
# More intense rainfall increases risk to Storm Water and combined Sewer Network in settlement areas

Increasing volumes of water may exceed design capacity of storm water network (gullies, underground pipes etc).

Combined sewer networks if flooded out will lead to pollution discharges



# Urban Runoff Impact on Wastewater Systems



# Pollution from motor traffic



Barntown, Wexford



Dungarvan, Waterford

Table 2. Sources of pollutants released by vehicular traffic in urban areas.

Specific source	Pollutants released	References
<b>Vehicle operation</b>		
Exhaust gases and particles	Hydrocarbons, PAHs, NOx, Ni, BTEX	Markiewicz et al. (2017); Brinkmann (1985); Huber et al. (2016); Kayhanian (2012); Duong and Lee (2011); Liu et al. (2018b)
Catalytic converters	Rh, Pd, Pt	Rauch et al. (2005)
<b>Vehicle wear</b>		
Tires	TSS, Cd, Cu, Zn, PAHs, microplastics	Muschack (1990); Councell et al. (2004); McKenzie et al. (2009); Legret and Pagotto (1999); Kose et al. (2008); Horton et al. (2017a)
Tire studs	W	Huber et al. (2016)
Brakes	TSS, Cd, Cu, Ni, Pb, Sb, Zn, PAHs	McKenzie et al. (2009); Hjortenkrans et al. (2007); Markiewicz et al. (2017)
Engine and vehicle body wear	Cr, Ni	Gupta et al. (1981); Ward (1990)
Body paint	Pb	Kayhanian (2012)
Wheel balance weights	Pb, Fe (steel), Zn	Root (2000); Bleiwas (2006)
<b>Vehicle washing</b>		
Commercial car washing facilities	Pb, Cd, Cr, Zn Phthalates, NPs, NPEOs	Sörme et al. (2001) Björklund (2010)
<b>Road abrasion</b>		
Abrasion by tires (non-studded and studded)	TSS  PAHs Microplastics	Hvitved-Jacobson and Yousef (1991); Van Duin et al. (2008) Lindgren (1996) Markiewicz et al. (2017) Magnusson et al. (2016); Horton et al. (2017b); Vijayan et al. (2019a)



Example of Stormflow impact on Clashawley River, Fethard, Co. Tipperary during low flow river water levels, after a localised shower of rain in 2019. *Source J. Gilleran, EFO, IFI Clonmel*









**Drainage and land restructuring – if not managed appropriately**





16/05/12 and even prior to new drainage in 2013



02/09/14 and even after new drainage



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The United Nations World Water Development Report 2020

# **‘Water and Climate change’**

*Main Messages*

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*Water is the medium through which nature and human societies experience most of the impacts of climate change. Sustainable water management is an essential part of the solution to climate change.*



# Storm Chandra floods made three times more likely by climate change

Caroline O'Doherty

Analysis shows rainfall preceding storm left areas 'primed' for flooding

Thu Jan 29 2026 - 20:00

## Natural Rivers vs engineered rivers..what is the balance?

- Climate change 
- Land use management
- Planning
- Flood defenses and river engineering
- Nature-based solutions
- Techniques to "rehabilitate" rivers and work with Nature

### Carlow

## Road closures mount across Carlow as flood damage turns roads to 'muck'

Council warns of widespread structural failure following days of heavy rain

## Calls for expanded EU aid after severe flooding in Carlow and Kilkenny



by Martin Quilty — 11/02/2026 in KCLR News, News & Sport















Diverse flow regime,  
greater habitat  
complexity &  
heterogeneity and  
more stable channel  
for flood conveyance

River bank vegetation  
establishing along  
banks generated by  
deposition of silt

Random boulders for  
shelter for fish and  
for birds and  
mammals to sit

Gravel  
introduced  
for spawning  
fish

## Nature-based solutions and Multiple-benefits

Dr. Fran Igoe: Local Authority Waters Programme. 25/05/23

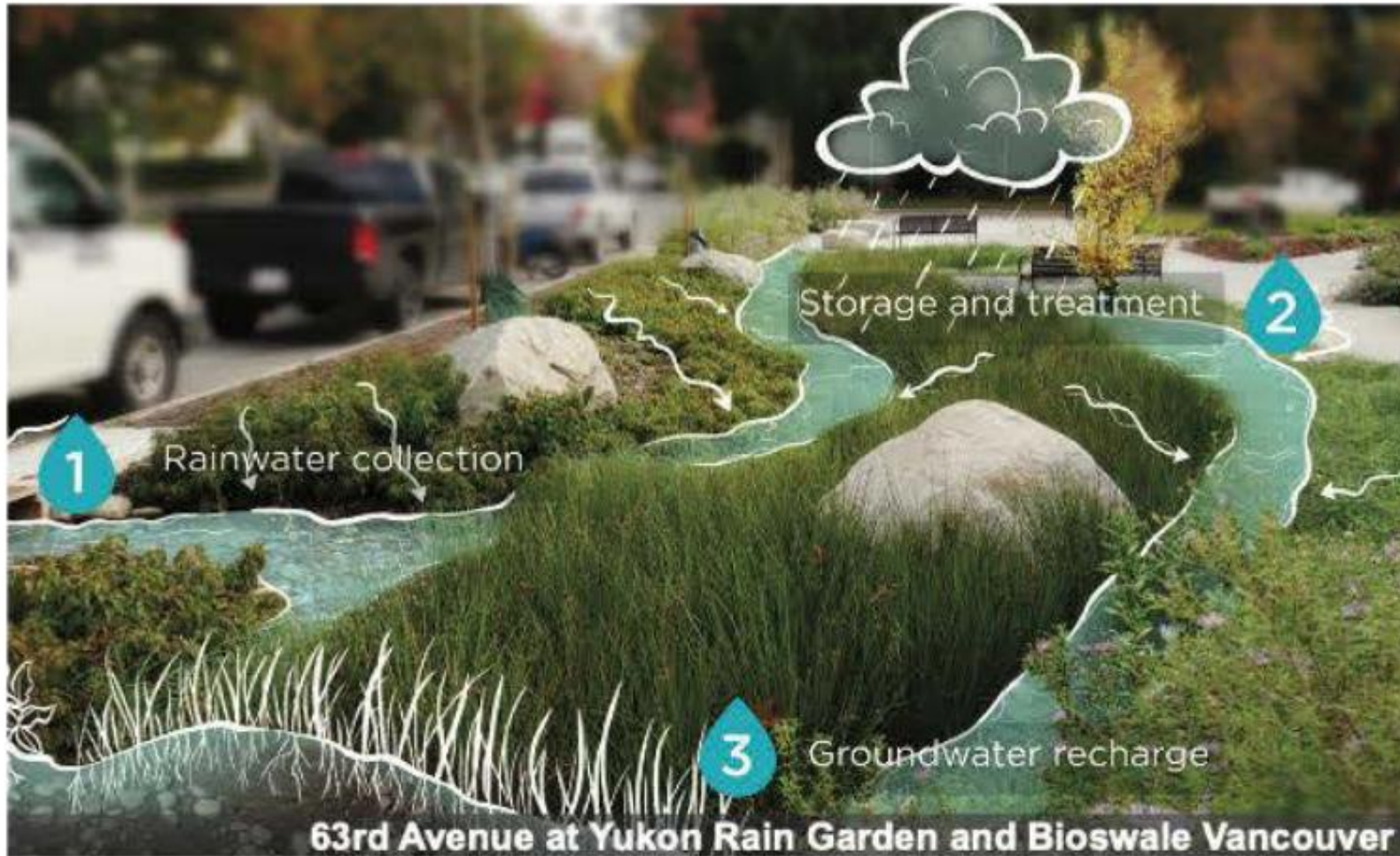


**Fish live in trees too!**



# Working with Nature in our towns and villages

## BIORETENTION



to slow the flow and take out pollutants

RAIN CITY  
STRATEGY

Survey of pedestrians (Carlow town, n = 47: Aug 2024)	Yes
Do you know what this is?	34%
Do you think we should put more of them around the town?	89%
Do you think there should be a public meeting or social media campaign to explain what they are?	55%
Do you think there should be signage to explain what they are?	68%
Would you be willing to help maintain them?	53%



Courtesy Padraig O’Gorman,  
 Ciaran Brennan, Barry Knowles,  
 Lilly Slye



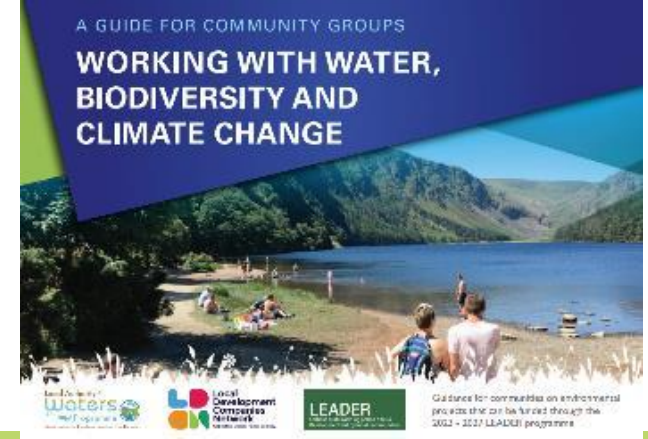
Carlow's rain gardens are a free draining soil mix that cleans, stores and conveys runoff water

# If we want a healthy river – then we need to look after it

- Manage human and animal nutrients
- Look after the river form (shape – work with it!)
- Involve all representatives in the local community
- Put together a plan – informed by science and local knowledge





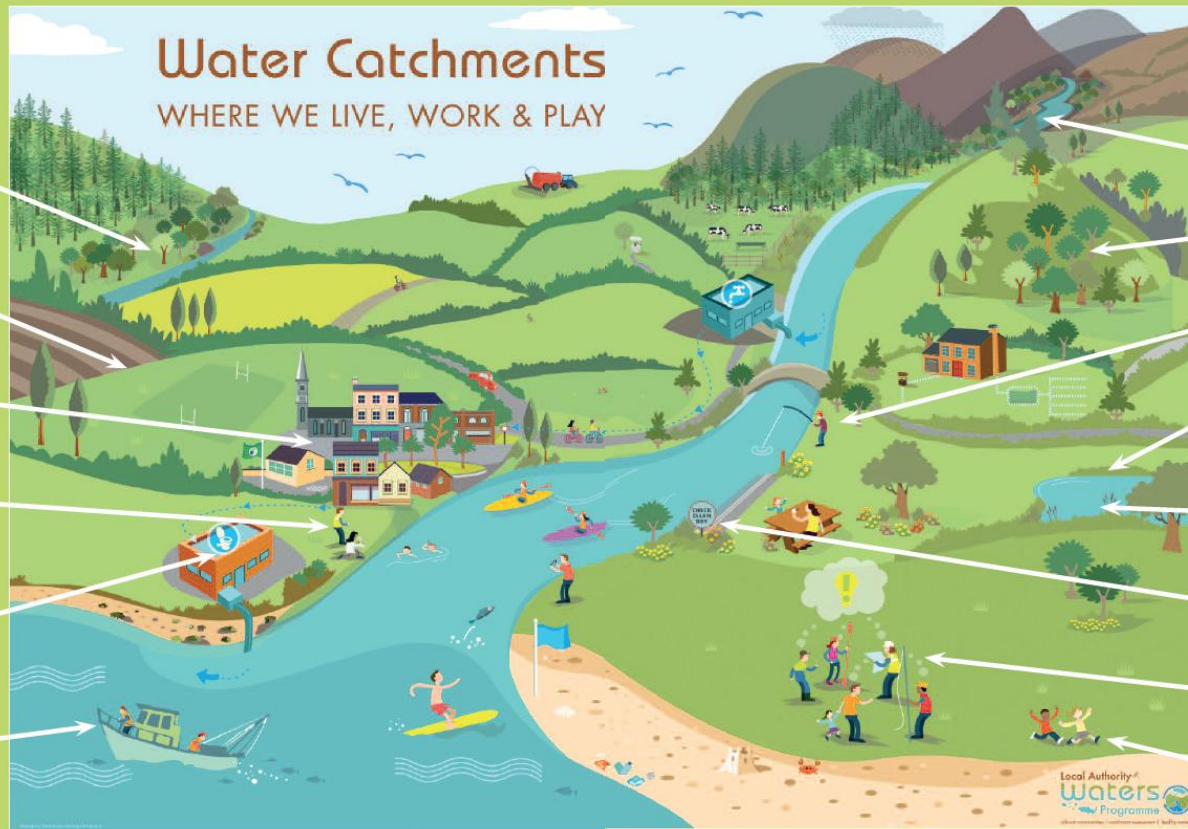


# We all can do something

A FEW IDEAS TO HELP WATER, BIODIVERSITY AND CLIMATE

## THINK PROJECTS...

- Planting of native wildflowers and vegetation in habitat restoration project
- Silt trapping or 'Slow the Flow' Natural Flood Retention Measures such as the addition of large woody debris to drains
- Rain garden and SuDS
- Innovative techniques for monitoring water quality and biodiversity
- Rainwater harvesting on roof of buildings and use of recycled water
- Coastal or lake nature safari and stewardship project by local fishermen and recreational users

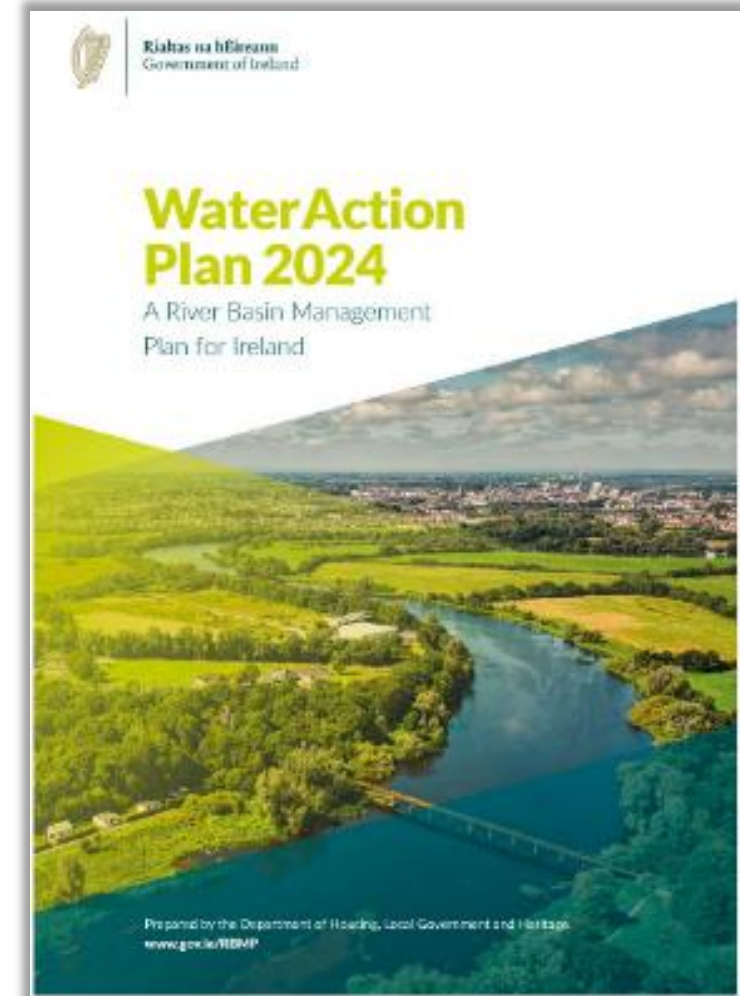


## ...THINK RIVER CATCHMENTS

- Fish passage project
- Tree planting and riparian biodiversity work
- Citizen science project led by anglers
- Bespoke breeding boxes for birds and mammals
- Wetlands to promote wildlife and reduce pollution and flooding
- Removal of invasive species and biosecurity planning
- Putting a plan together: where it all begins. Feasibility studies and planning involving all of the community in the catchment
- Outdoor biodiversity classroom

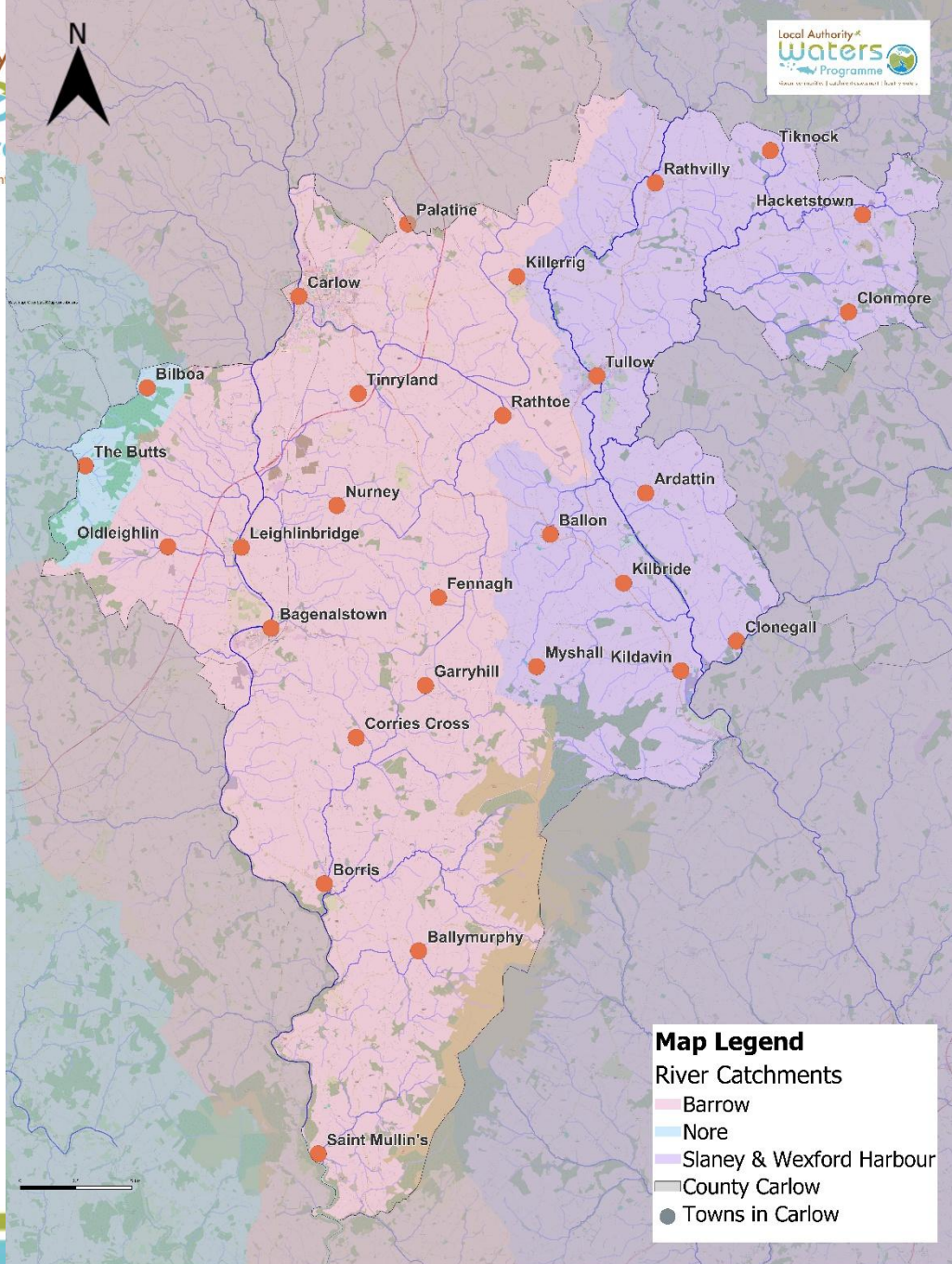
## Launched September 2024

- Government commitment to protecting & restoring Ireland's natural waters by complying with the requirements of the Water Framework Directive
- Accelerate the identification and implementation of the **right measures in the right places** to both restore and protect all water bodies

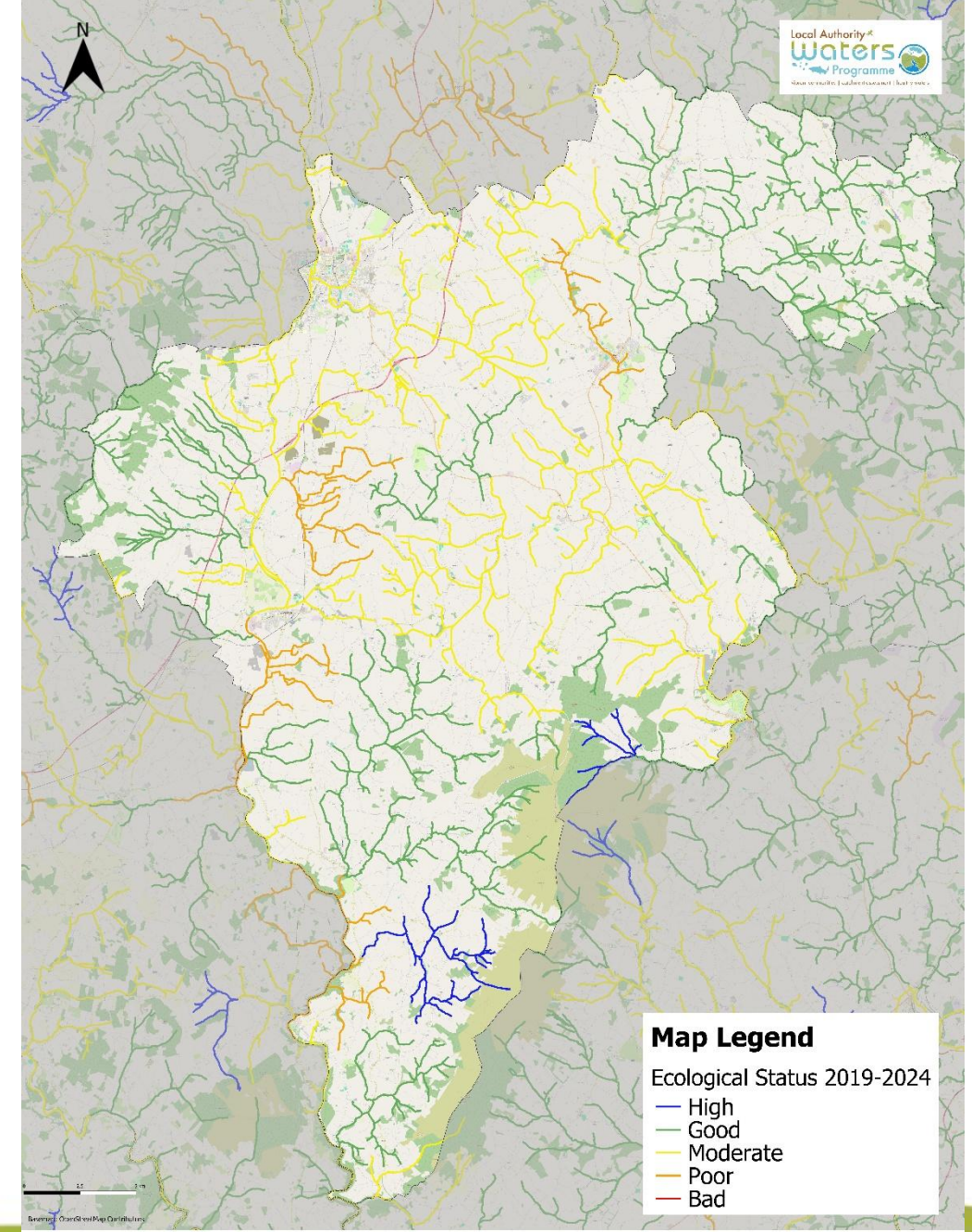


# Jules Michael –Drummin Bog Restoration Project





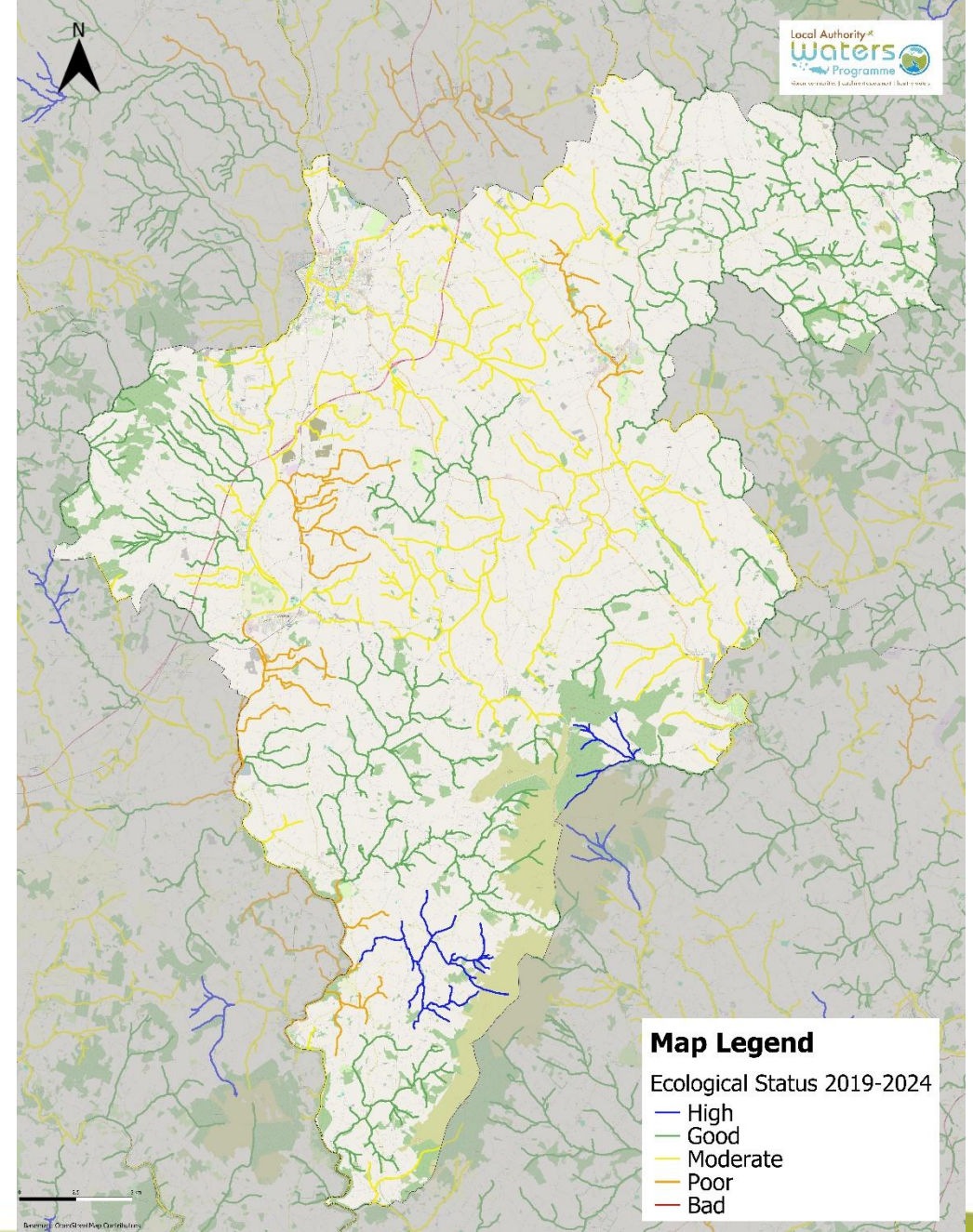
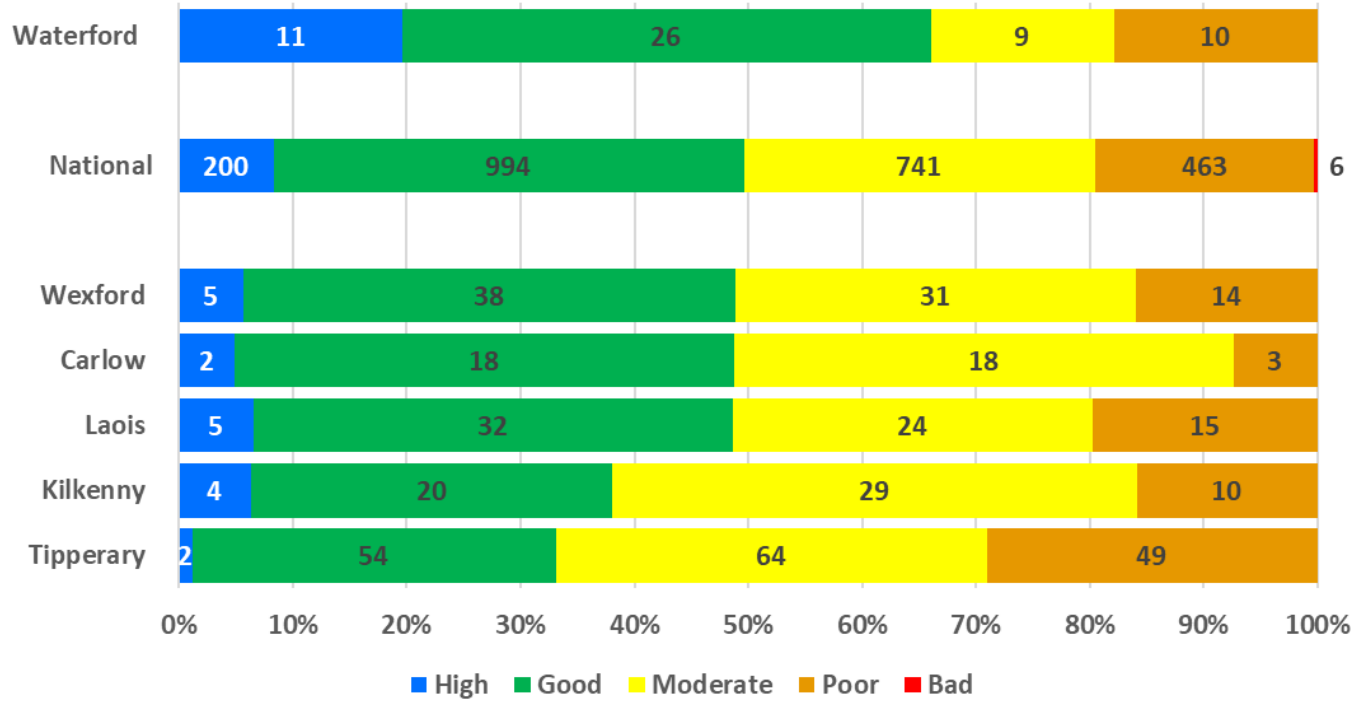
**Rivers in County Carlow**



**Rivers in County Carlow  
 Ecological Status 2019-2024**

# Water Quality In Carlow

SE ROC Ecological Status of Monitored Rivers



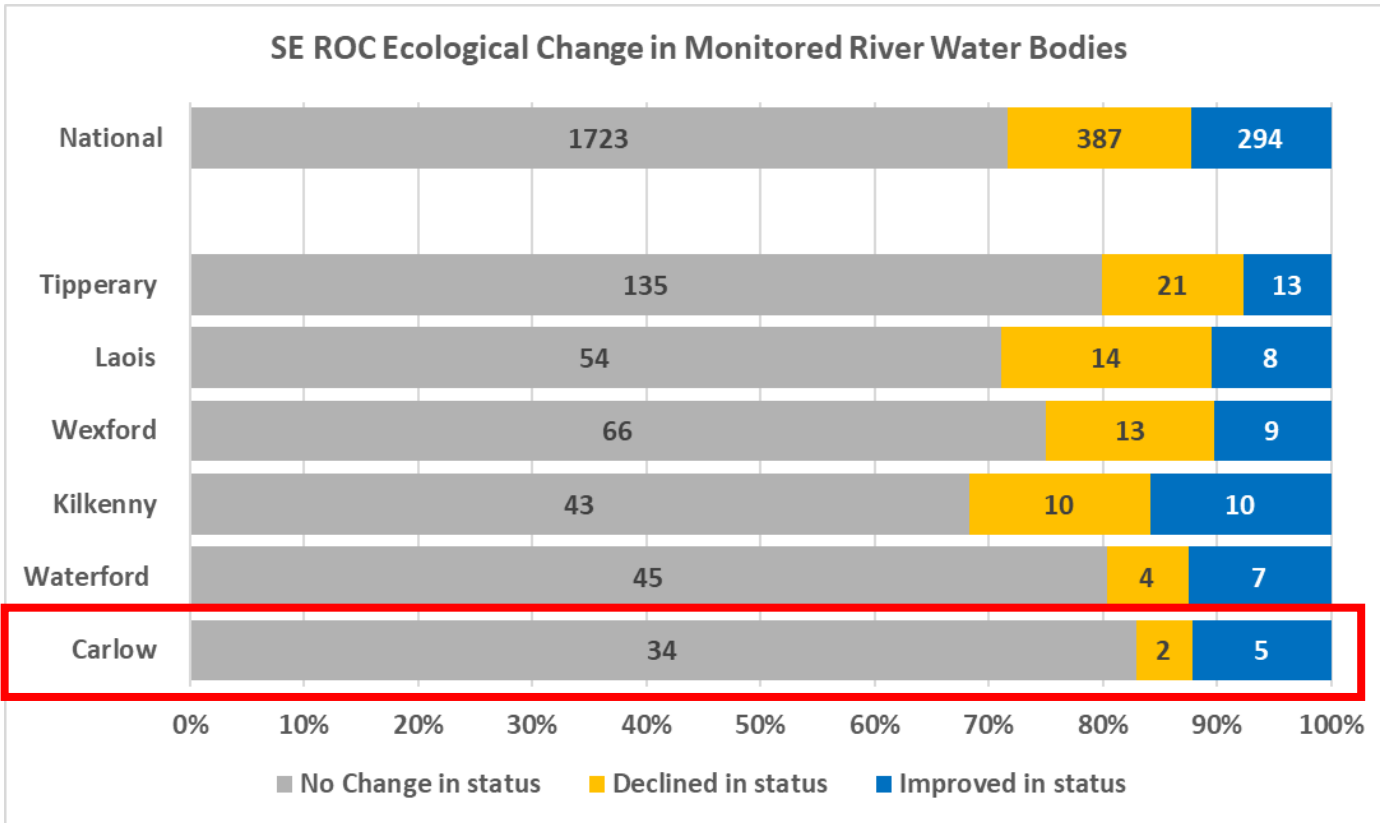
**Map Legend**  
 Ecological Status 2019-2024

- High
- Good
- Moderate
- Poor
- Bad

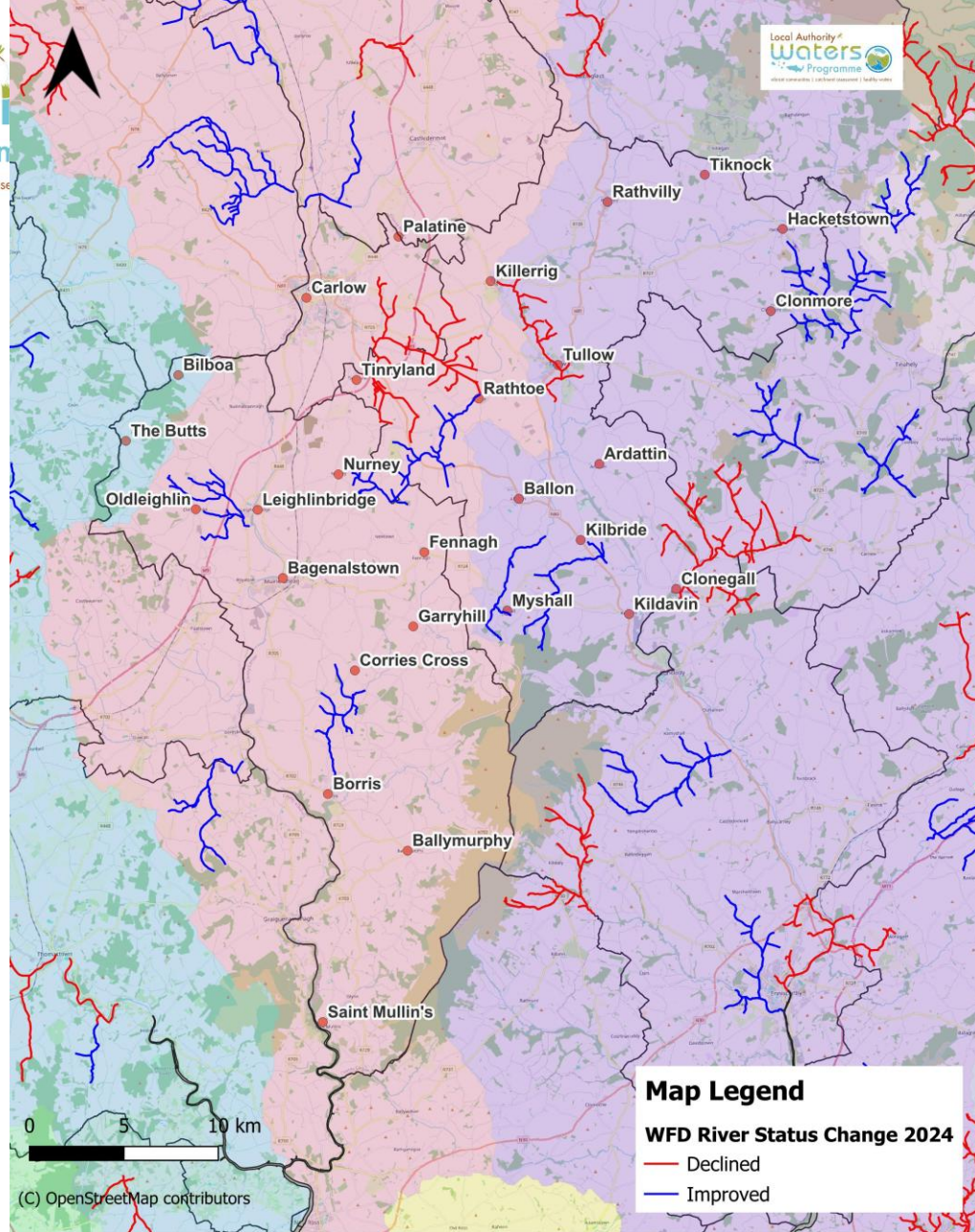
**Rivers in County Carlow  
 Ecological Status 2019-2024**

# Water Quality Change since 2021

SE ROC Ecological Change in Monitored River Water Bodies



County	No Change in status	Declined in status	Improved in status	Net changes
Carlow	34	2	5	3
Waterford	45	4	7	3
Kilkenny	43	10	10	0
Wexford	66	13	9	-4
Laois	54	14	8	-6
Tipperary	135	21	13	-8



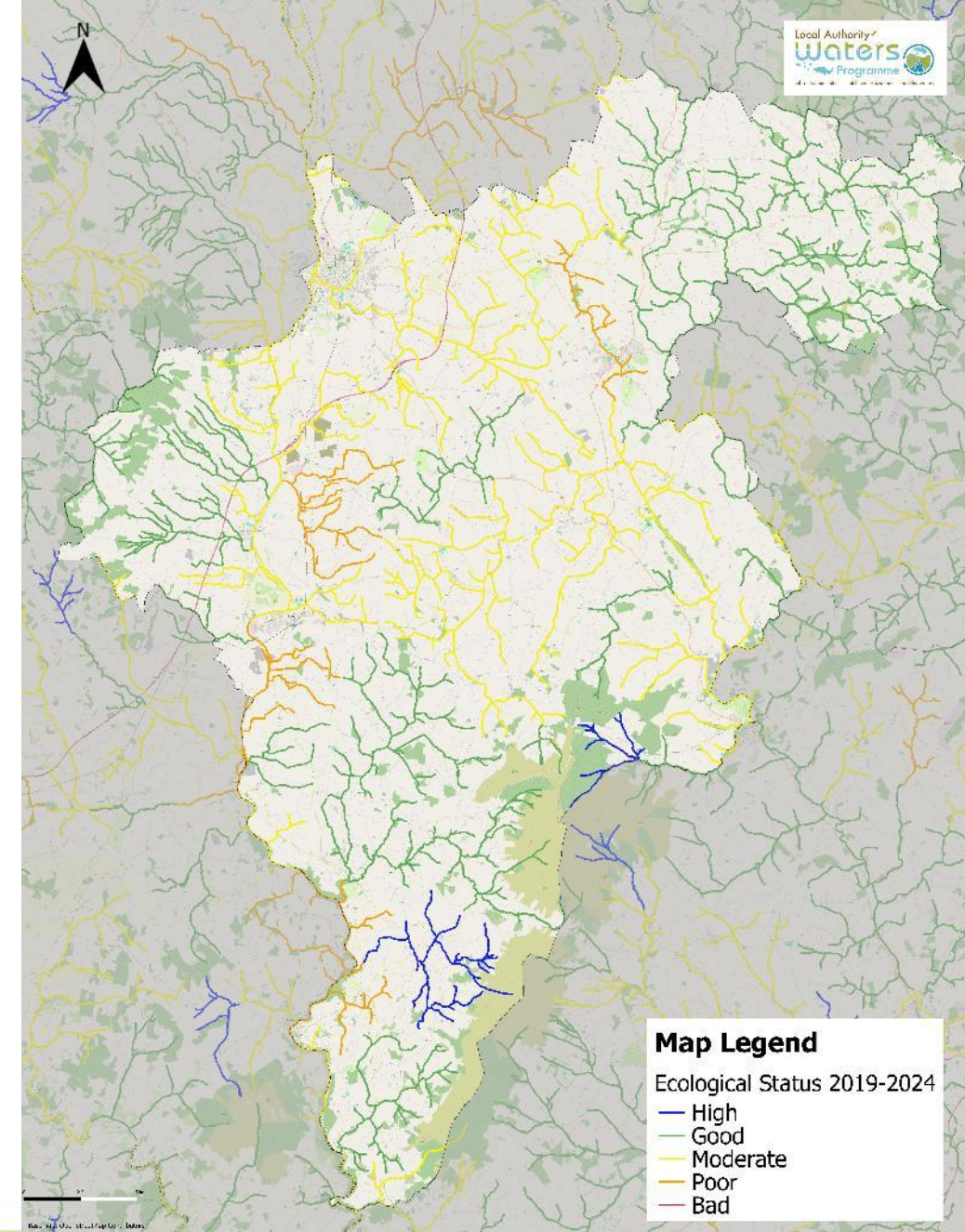
**Map Legend**

**WFD River Status Change 2024**

- Declined
- Improved

(C) OpenStreetMap contributors

**Changes in Water Quality in Carlow  
 2021 - 2024**



**Map Legend**

**Ecological Status 2019-2024**

- High
- Good
- Moderate
- Poor
- Bad

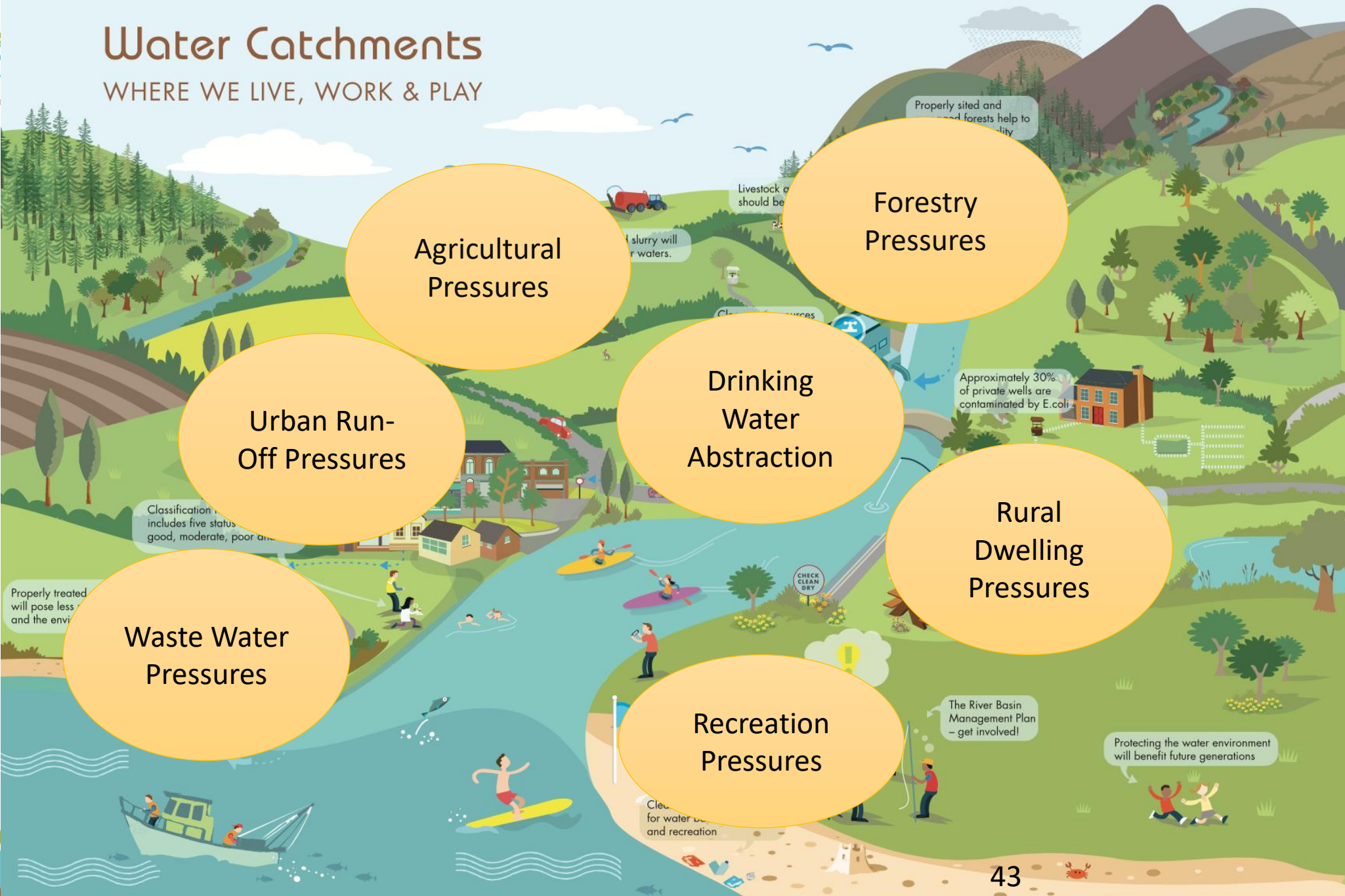
**Rivers in County Carlow  
 Ecological Status 2019-2024**

# What impacts water quality?



# Water Catchments

WHERE WE LIVE, WORK & PLAY



**Agricultural Pressures**

**Forestry Pressures**

**Drinking Water Abstraction**

**Rural Dwelling Pressures**

**Waste Water Pressures**

**Recreation Pressures**

## Current Pressures and Impacts

SCALE:  National  Catchment  Subcatchment  Local Authority

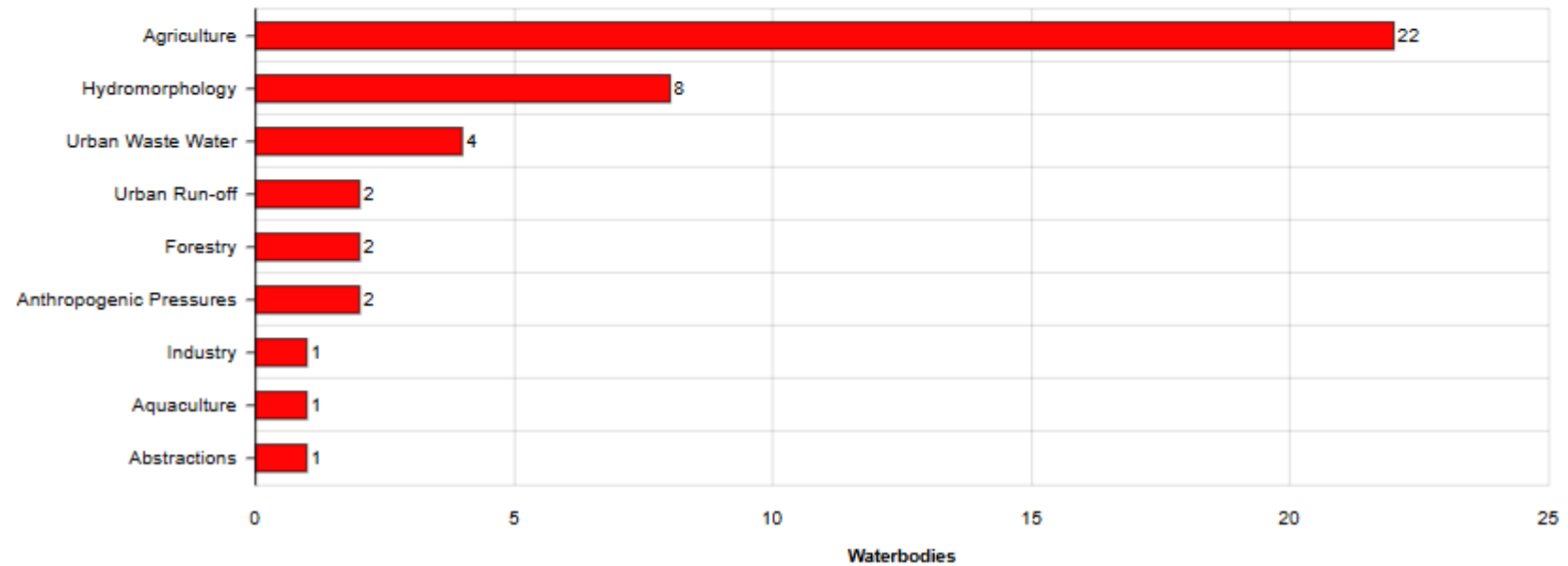
Carlow County Council

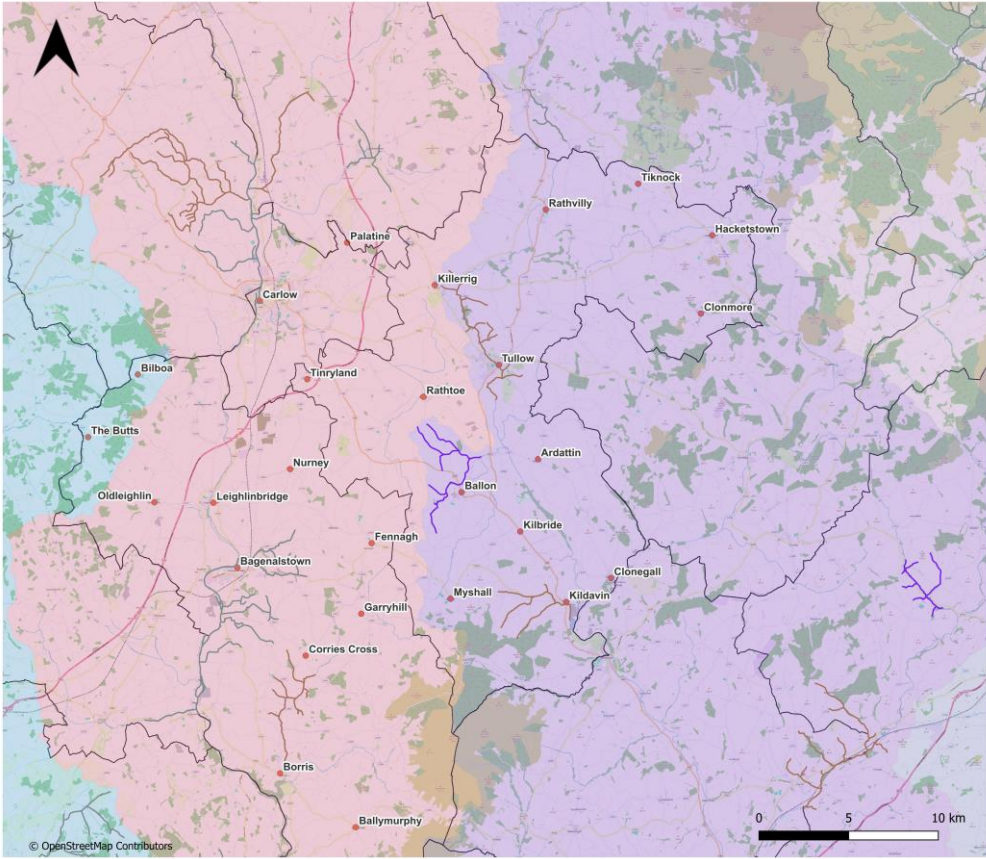
SELECT TYPE:

High Ecological Status Objective only

All Surface Waters

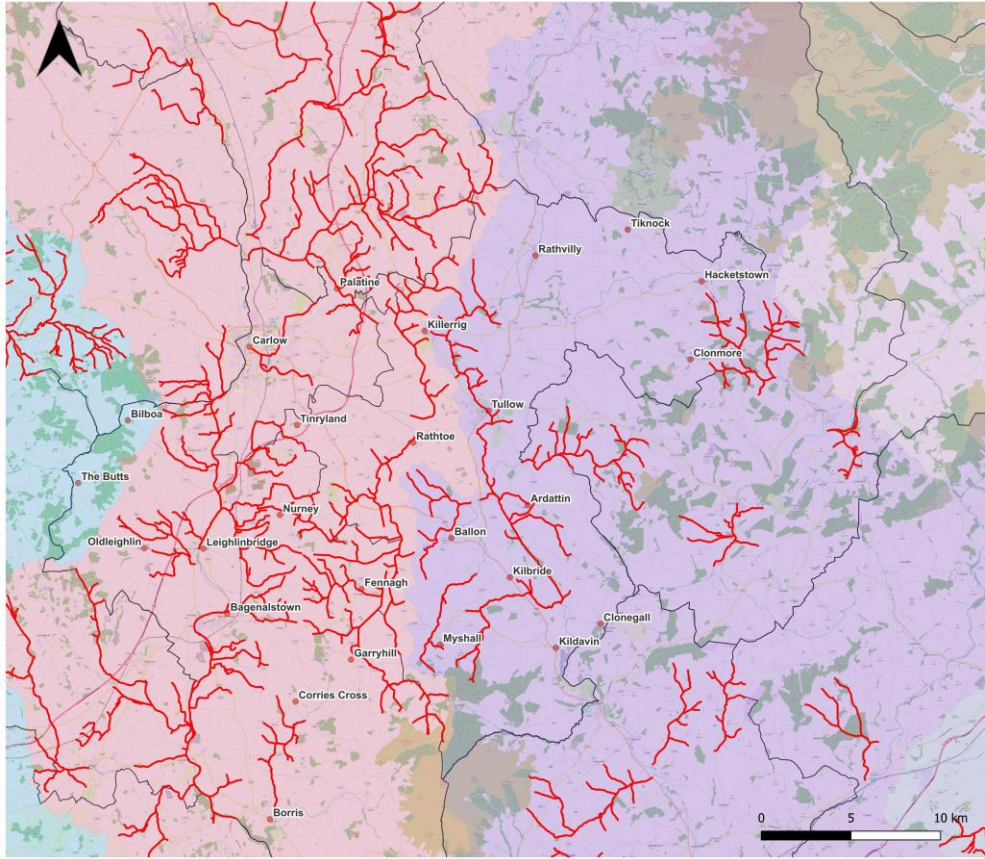
### Significant Pressures Impacting At Risk Waterbodies





**Carlow & Tullow  
 Municipal Districts**  
**Pressures on Water  
 Quality**

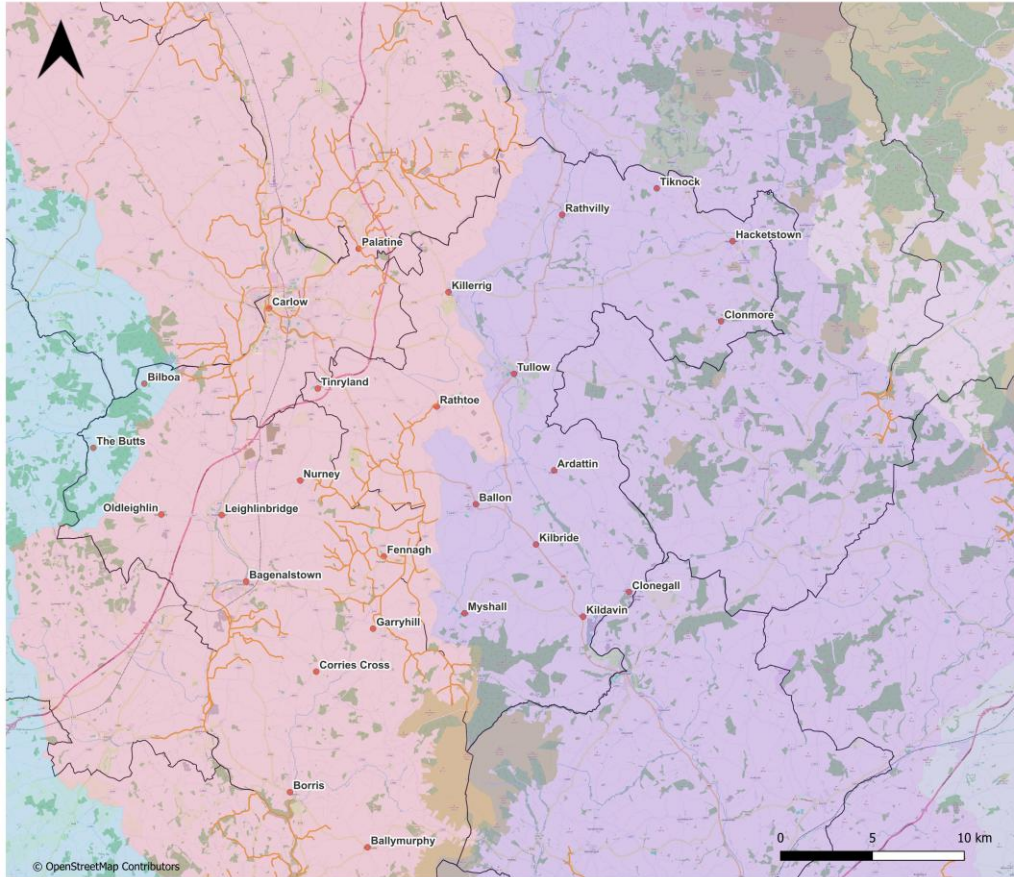
- Map Legend**
- Industry
  - Wastewater treatment
  - Urban Run-off
  - Municipal District Areas
  - River Catchment Areas**
  - Barrow
  - Nore
  - Slaney & Wexford Harbour



**Carlow & Tullow  
 Municipal Districts**  
**Pressures on Water  
 Quality**

- Map Legend**
- Agriculture
  - Municipal District Areas
  - River Catchment Areas**
  - Barrow
  - Nore
  - Slaney & Wexford Harbour

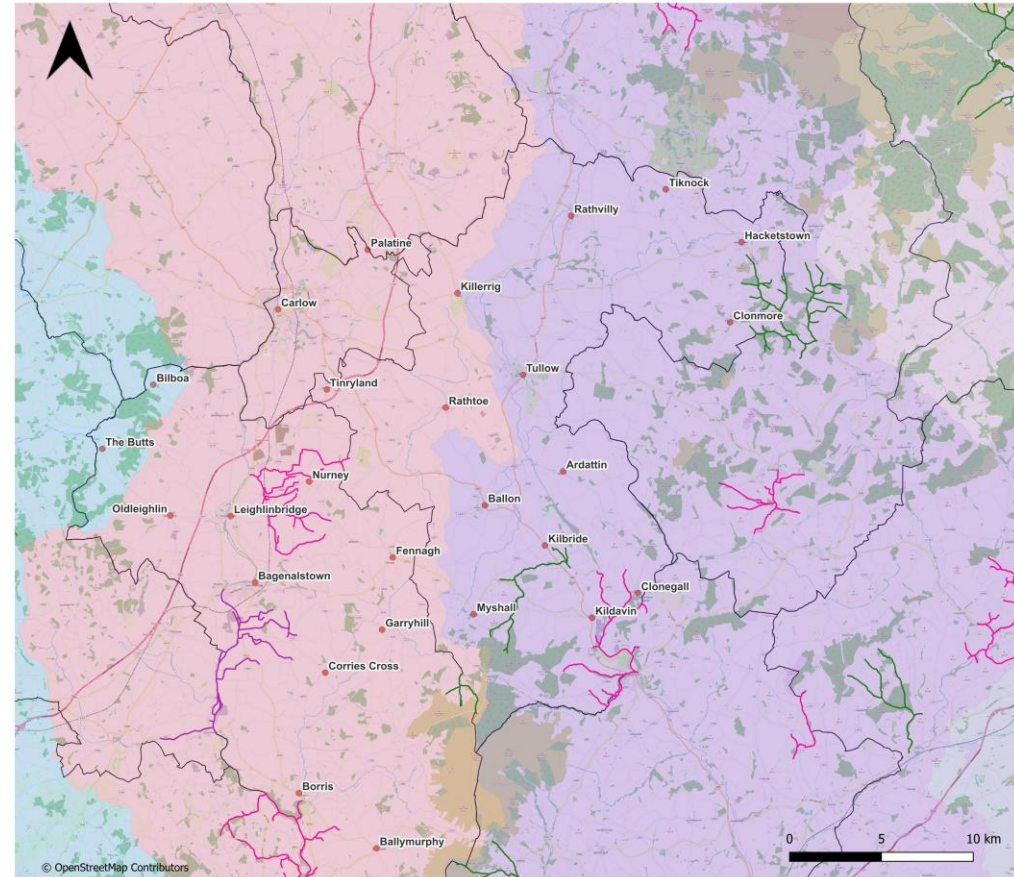




**Carlow & Tullow  
 Municipal Districts  
 Pressures on Water Quality**

**Map Legend**

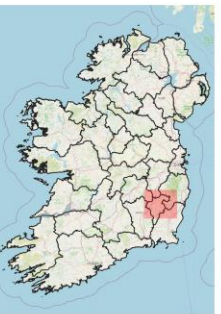
- Hydromorphology
- Municipal District Areas
- River Catchment Areas
  - Barrow
  - Nore
  - Slaney & Wexford Harbour



**Carlow & Tullow  
 Municipal Districts  
 Pressures on Water Quality**

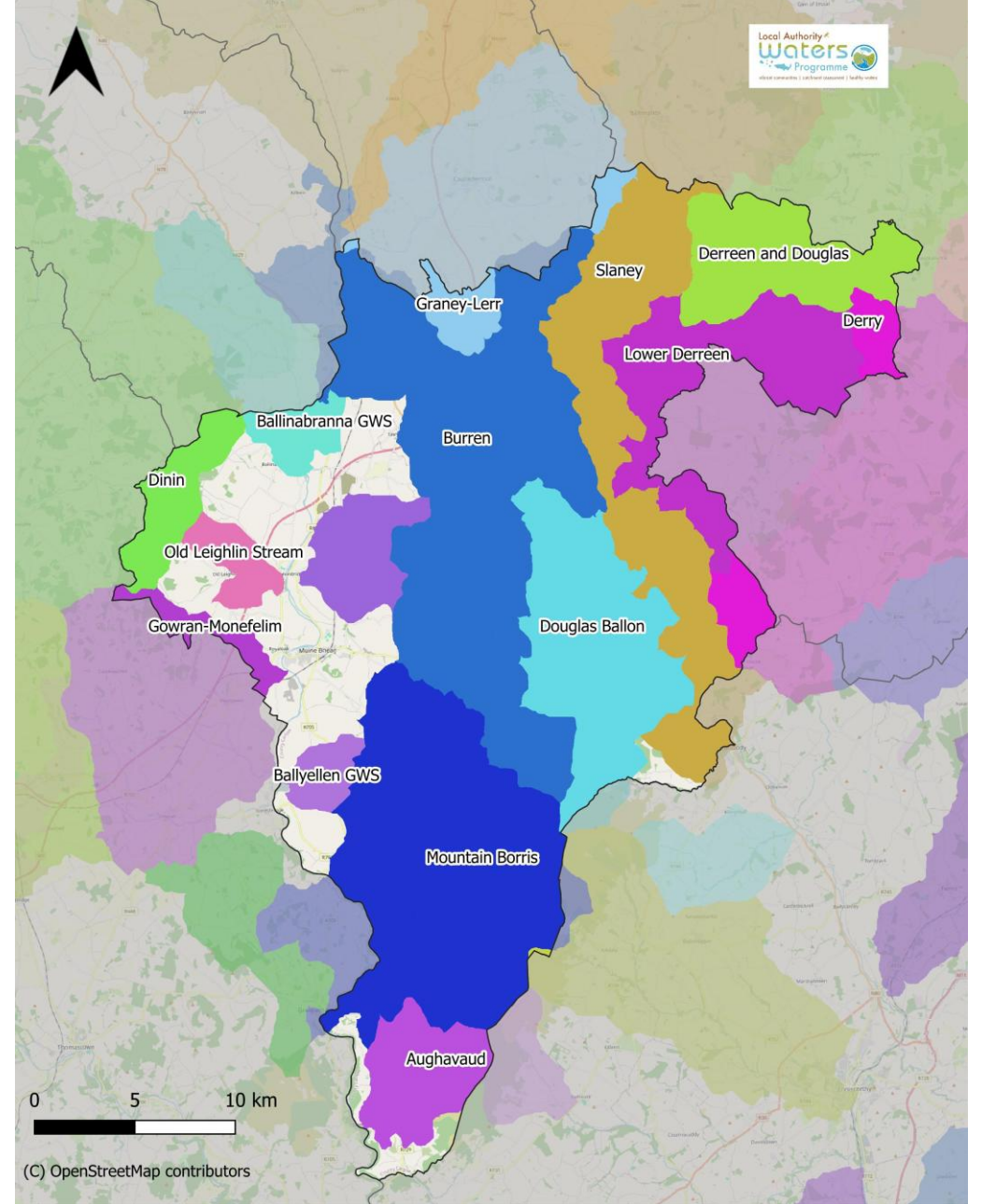
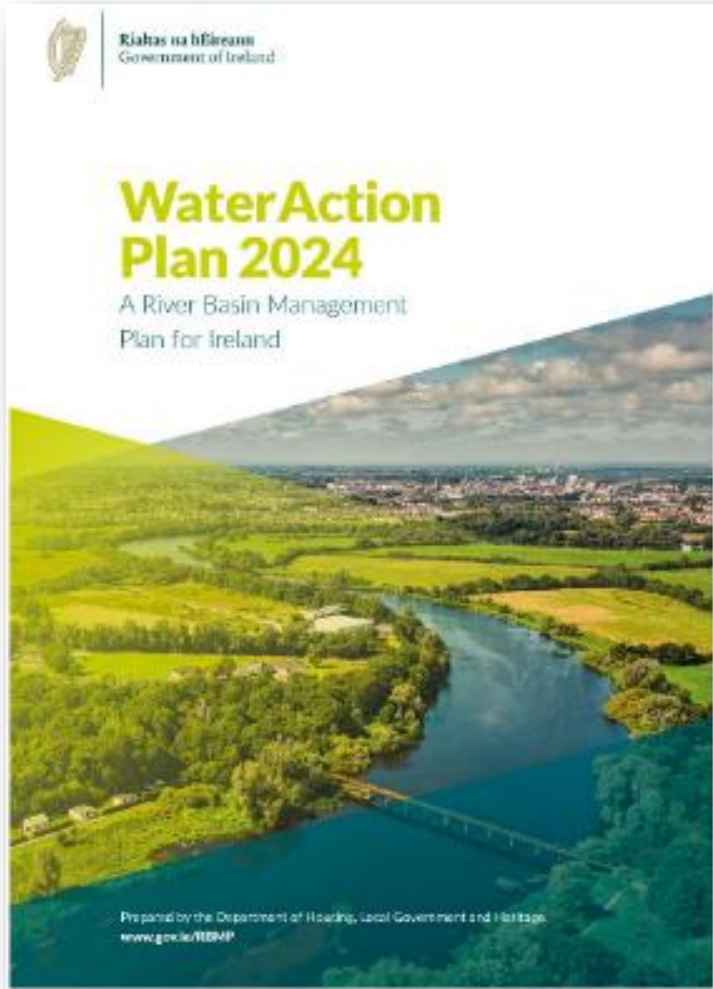
**Map Legend**

- Other Unknown activities
- Aquaculture
- Forestry
- Municipal District Areas
- River Catchment Areas
  - Barrow
  - Nore
  - Slaney & Wexford Harbour



# What are we are doing?





**Water Action Plan 2024  
 Areas for Action in Carlow**

# Local Catchment Assessment Finding issues on the ground



Field chemistry and field observations



Biological sampling - invertebrates



River walks



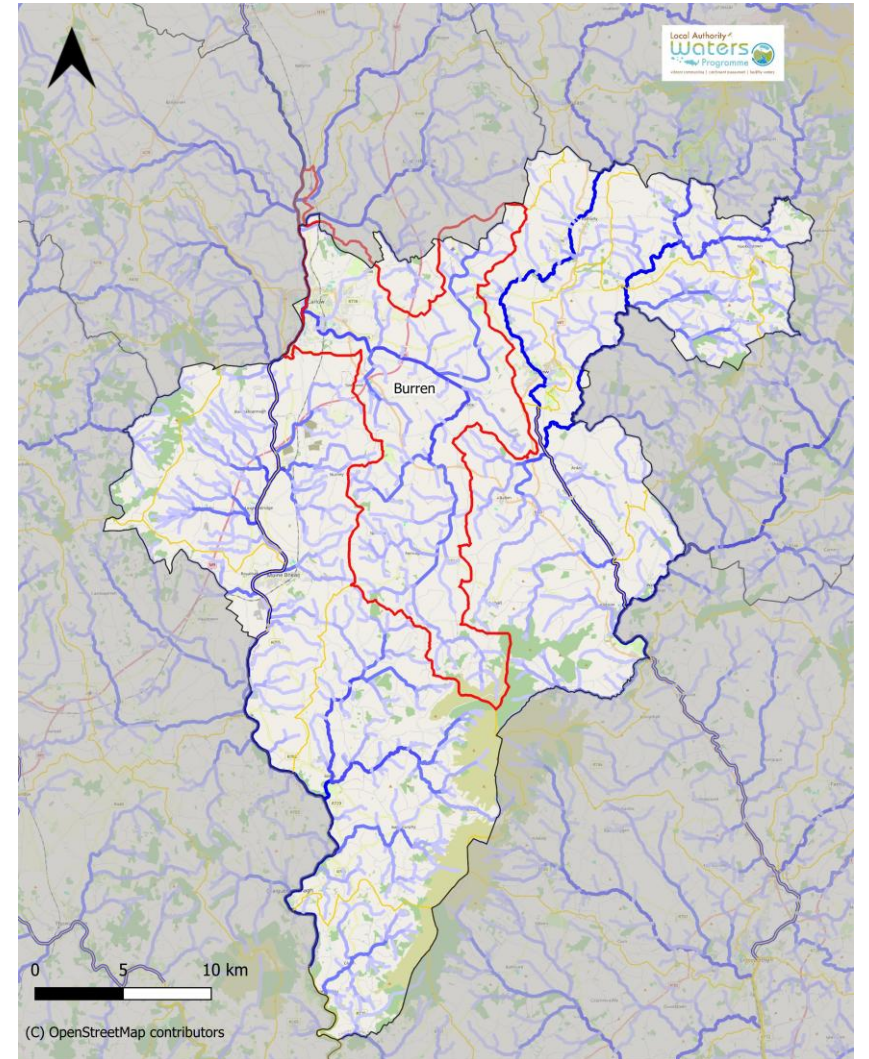
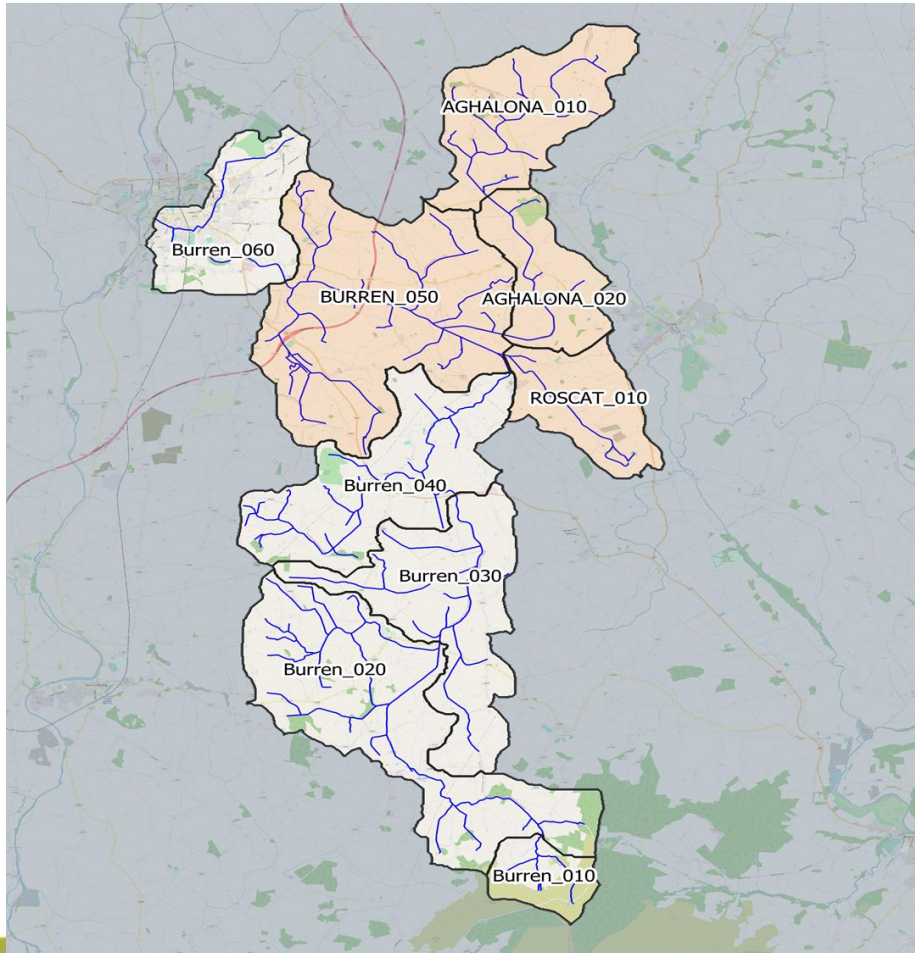
Biological sampling - vegetation



Chemistry sampling

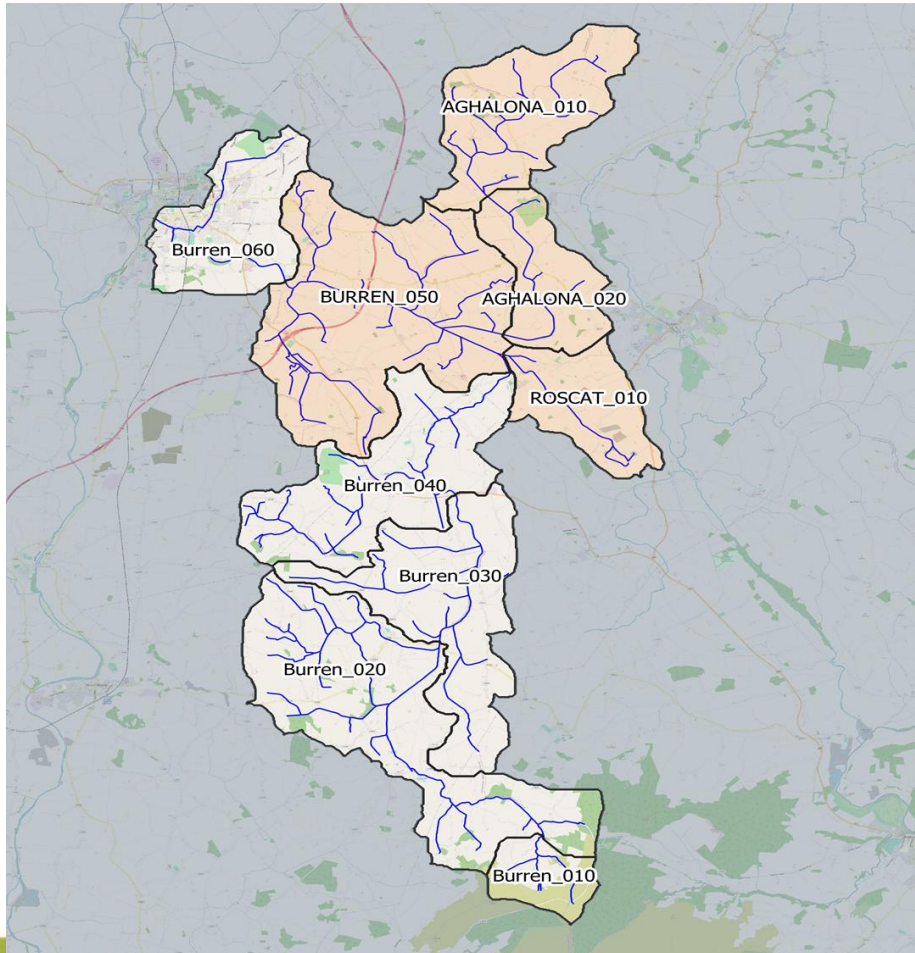


# Burren Priority Area for Action

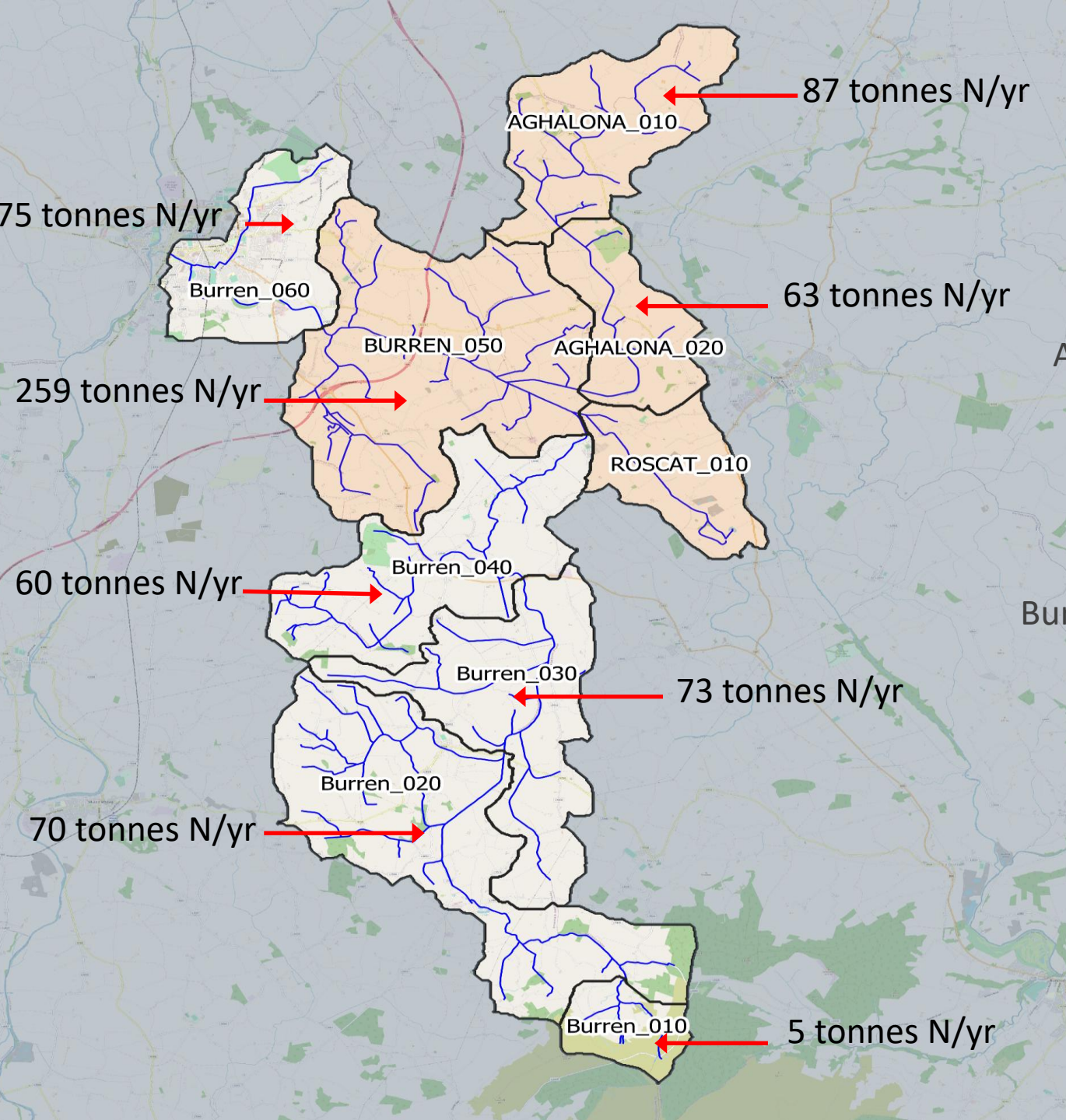


**Burren Priority Area for Action**

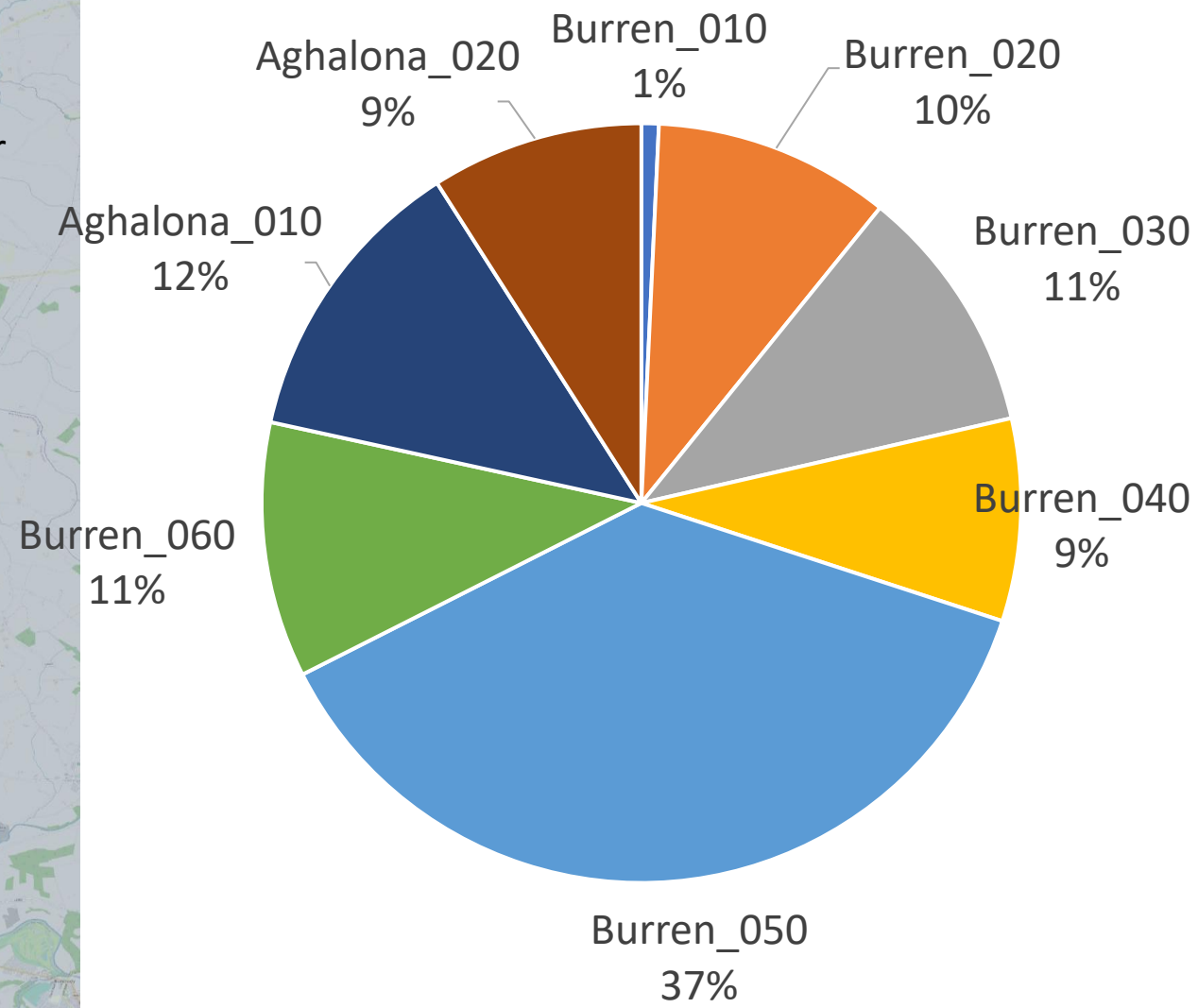
# Burren Priority Area for Action



- Water Quality Issues in Burren
  - Nitrate levels are too high
  - Natural river habitats are degraded
  - Hydromorphology (altered river channel)



## Nitrate load from each waterbody



## Examples of Hydromorphology Pressures in Burren



## Insufficient protection of river and riparian area from forestry and agricultural activities



# Programme of Measures

- When we find issues, we refer the evidence to the appropriate regulator/ support scheme
  - Agriculture, we refer to ASSAP
  - Forestry, we refer to Forest Service
  - Licensed discharges, we refer to Local Authority or Environmental Protection Agency etc.
- Measures can be implemented to address the issues



## Carlow/Tullow Area – LAWPRO Community Update

- Community Team
- Engagements and Event
- Funding
- Slaney Catchment Community Forum



# What does the Community Team do?

We work directly with communities to raise water quality awareness and drive local projects. – eg Clean-Up events with local Tidy Towns, citizen science, events

Our goal is to empower local communities to manage and protect their own water bodies and participate in the River Basin Water Action Plan at local level



# Some recent Events Co Carlow



## "Flight, Water, Home: The Birds of Drummin Bog"

Please join us for a walk and talk on Drummin Bog to celebrate peatland birds and Water Heritage Day

**Sunday 24th August 2025**  
meet at Drummond Church R95 DH34 @ 11am  
- talk led by experienced birder Mick Wright -

[www.drumminbog.com](http://www.drumminbog.com) for more details



# Community and Catchment Groups - 2026



- Myshall Nature
- Slaney Rivers Trust
- Palatine GAA – Nature-based Solutions
- Drummin Bog Restoration Project

# About our Funding Streams



**Small Grants and Events Scheme:** for Smaller Works Education and Awareness - up to €5,000

**Community Water Development Fund – Restoration/Protection Projects - €5,000 - €40,000**

**Catchment Support Fund – Funding stream to provide support to groups/core/operational funding – max award €50,000**

# Slaney – Catchment Community Forum



- One of 5 pilot catchments nationally
- Boyne, Malbay, Galway Bay SE, Newry-Fane-Glyde & Dee and Slaney
- 18 members in the Slaney Forum
- Good geographical representation
- Agriculture, angling, recreation, education community, tidy towns, environment



# Objectives of Catchment Community Foras



To involve local communities in catchment management and oversight



To serve as a consultative platform in the community on water



To increase wider public participation and build awareness of water quality issues



To actively participate in the Water Action Plan governance structures



To support interaction between the local community, implementing bodies/State agencies

# Responsibilities and Tasks - CCF

Improve and enhance  
WFD Article 14

Minimum of four  
forum meetings per  
year

Engage and involve,  
where possible, in the  
management of their  
catchment –  
governance structure

Consider all uses of  
water within the  
catchment

Review and interact  
with relevant plans and  
consultations

- Catchment Management  
Work Plan

Highlight significant  
threats to water

Hold public events,  
create awareness,  
citizen science,  
projects etc.

Open to new groups in Co Carlow – Talk to us!

Thank you