The role of time and riparian land- use in reaching WFD goals

Response from Roger Owen

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Scottish Environment Protection Agency

Summary Points

- Measuring the ecological success of restoration is often difficult – especially for physical modifications
- Progress towards 2027 objectives by EU countries is slow and maybe unachievable
- Local scale interventions have little impact on overall ecological objectives
- Catchment scale measures are required and suggests riparian buffer zones as being most achievable

Summary Points

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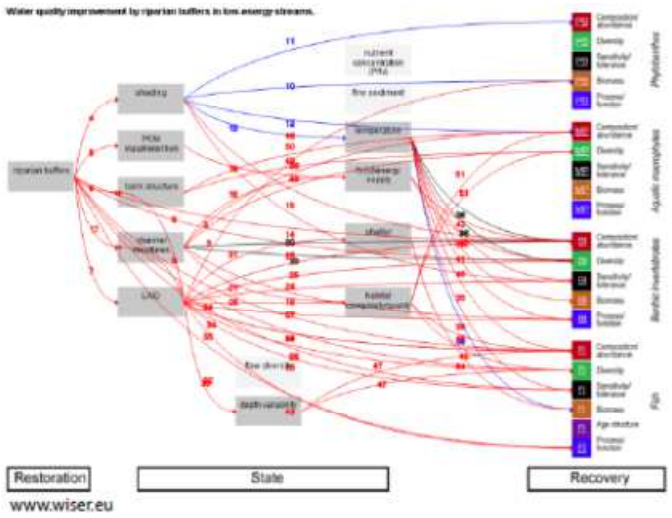
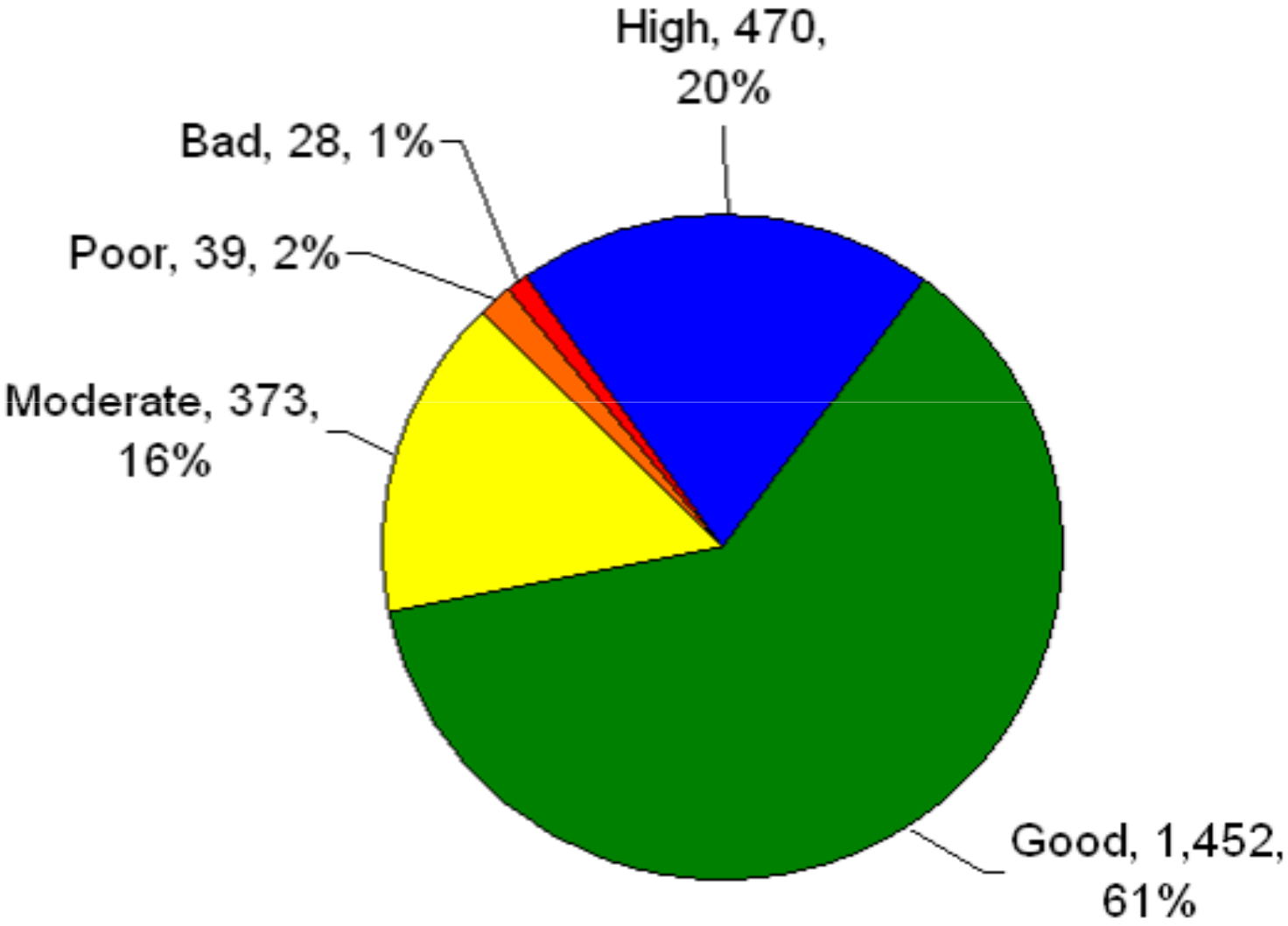
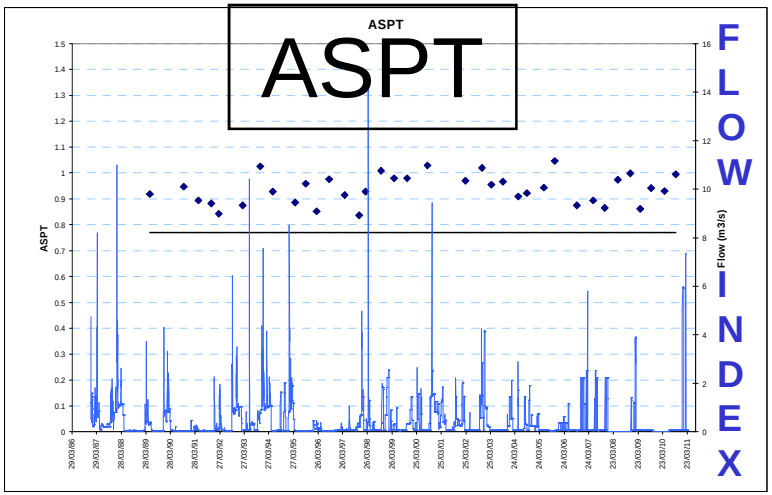
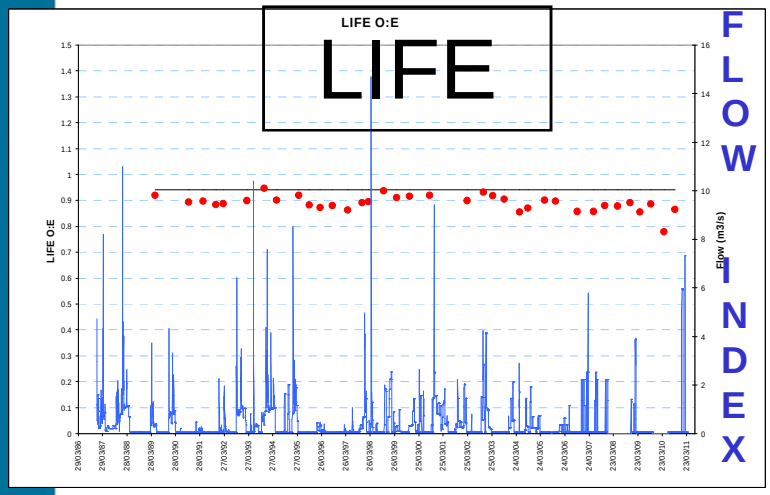


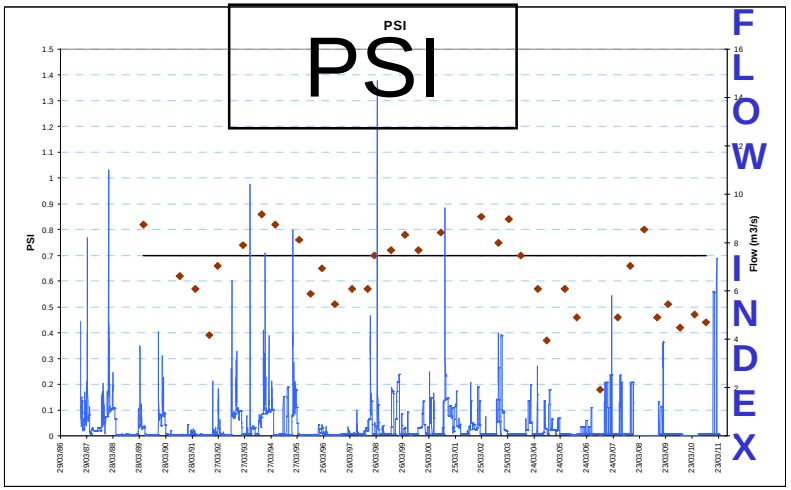
Morphology classification results - Scotland (number of water bodies)



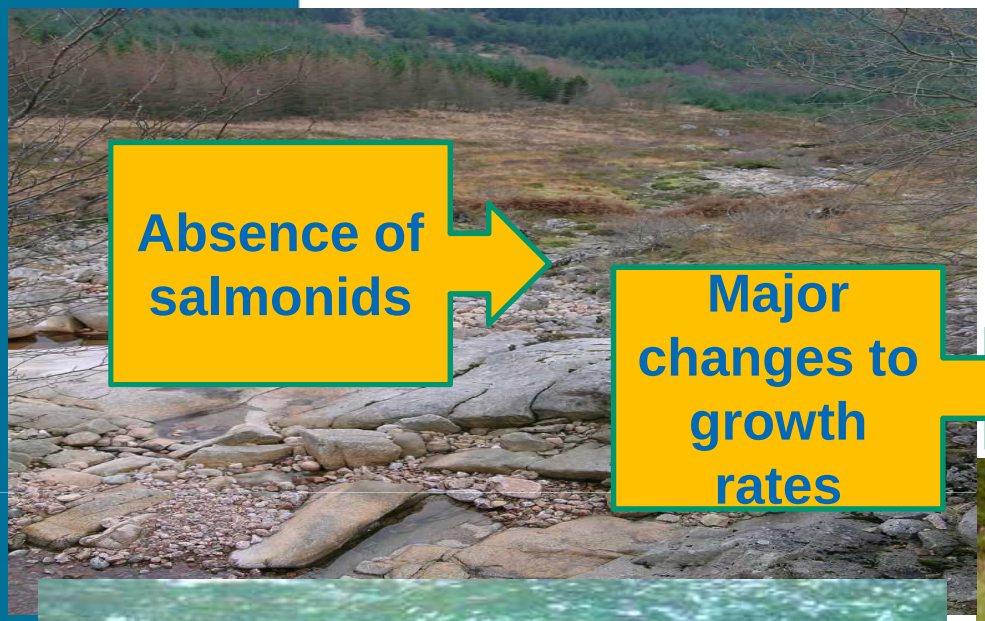
Flow (LIFE) and Sediment (PSI) Invertebrate Metrics







Ecological indicators of physical modification – Fish metrics



Absence of salmonids

Major changes to growth rates

Changes in fish guild presence

Poor survival and recruitment rates

Environmental standards - physical alteration

MImAS: Morphological Impact Assessment System

	Morphological Condition Limit			
Zone	High/Good	Good/Mod	Mod/Poor	Poor/bad
Channel	5%	25%	50%	75%
Banks & Riparian Zone	5%	25%	50%	75%

Summary Points

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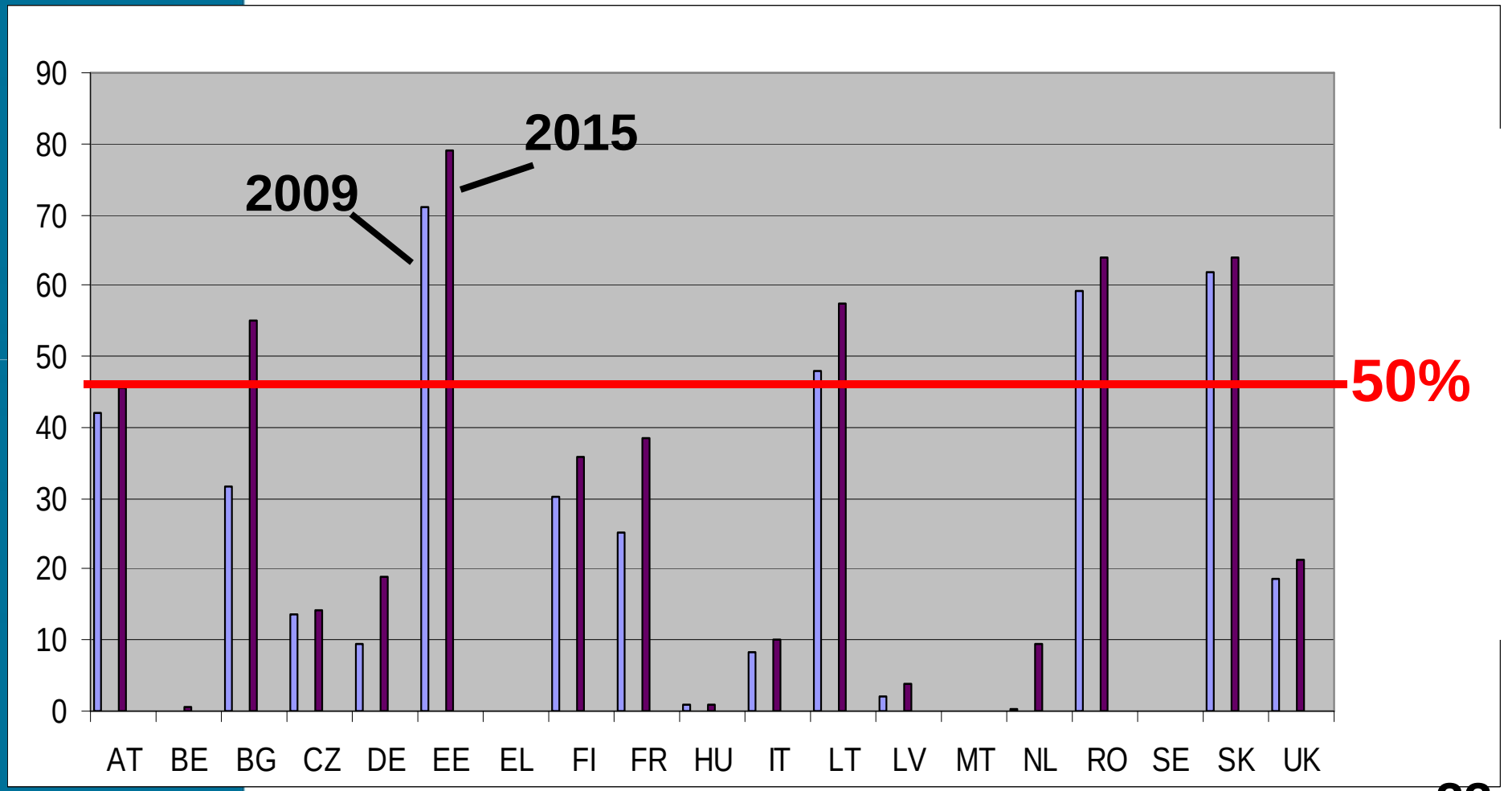
Achievement of GES 2009-15
% of all Water Bodies by Country



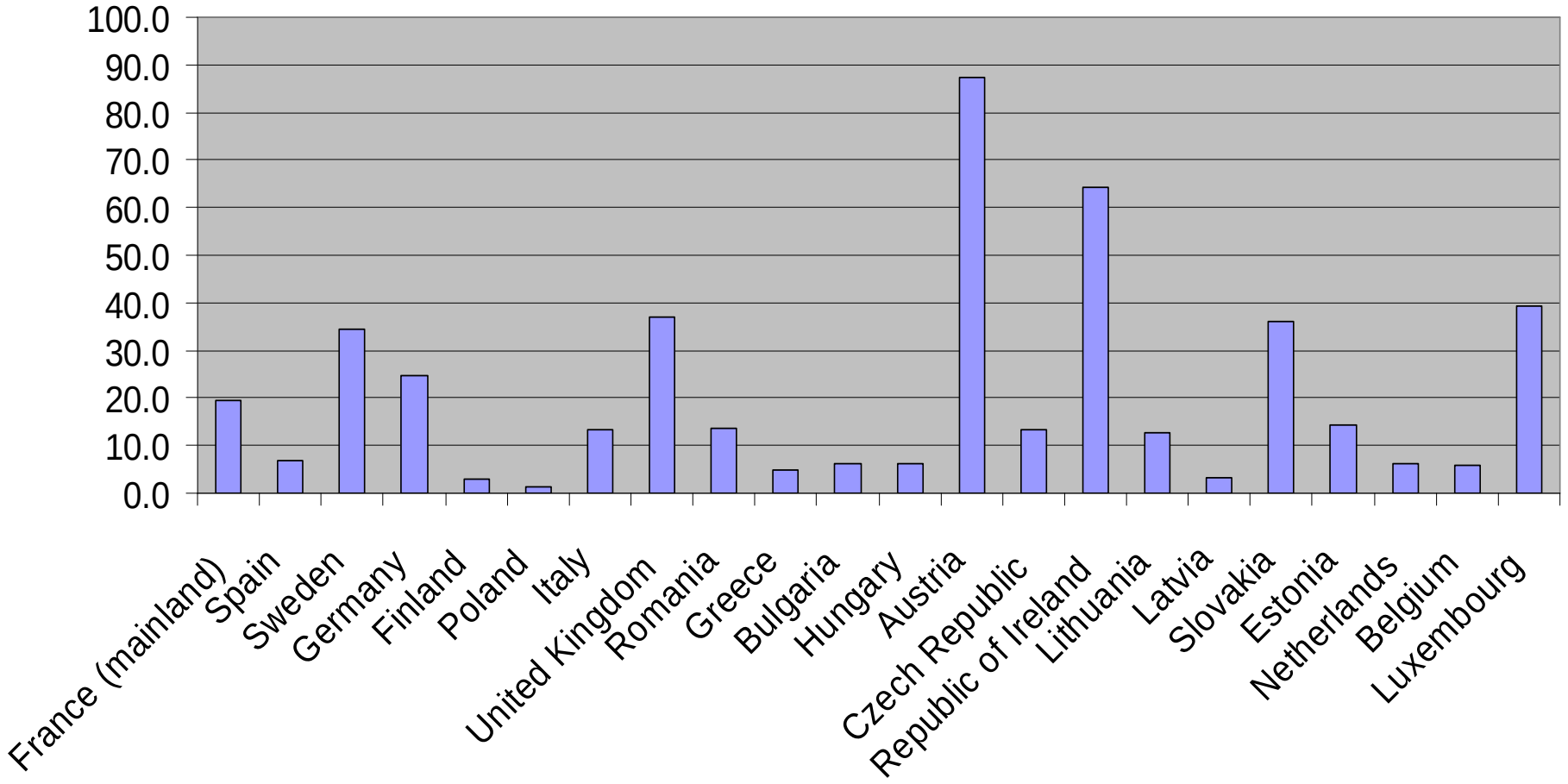
Data from Water Information System for Europe

Achievement of water body objectives by RBMP cycle – Scotland.

Objectives	2015	2021	2027
High	431	431	431
Good	1741	1975	2691
Moderate	605	496	75
Poor	297	203	25
Bad	159	123	11
Total	3233	3233	3233
% good or better	**67**	**74**	**97**

EU Member States: Density of WBs per 1000km²

Range: 1.4 – 87.3



Ecological status v. improvement measures (the message)

Tier 10	Tier 9	Tier 8	Tier 7	
OVERALL CLASSIFICATION	Overall chemistry	Priority Substances		
	Pass	Pass	Parameter 1	Pass
			Parameter 2	Pass
			Parameter 3	Pass
			etc..	
BAD	Overall ecology	Physico-Chemical		
	BAD	High	Temperature	High
			Soluble reactive Phosphorus	High
			pH	High
			Dissolved oxygen	High
		Hydromorphology Status		
		High	Hydrology	High
			Morphology	High
		Biological Status		
		BAD	Phytobenthos	High
			Macrophytes	Good
			Macroinvertebrates	BAD
			Fish barrier asse	igh
			Alien species a	High
		Specific Po		
		High	Parameter 1	High
			Parameter 2	High
			Parameter 3	High
			etc..	

Reporting GES progress:

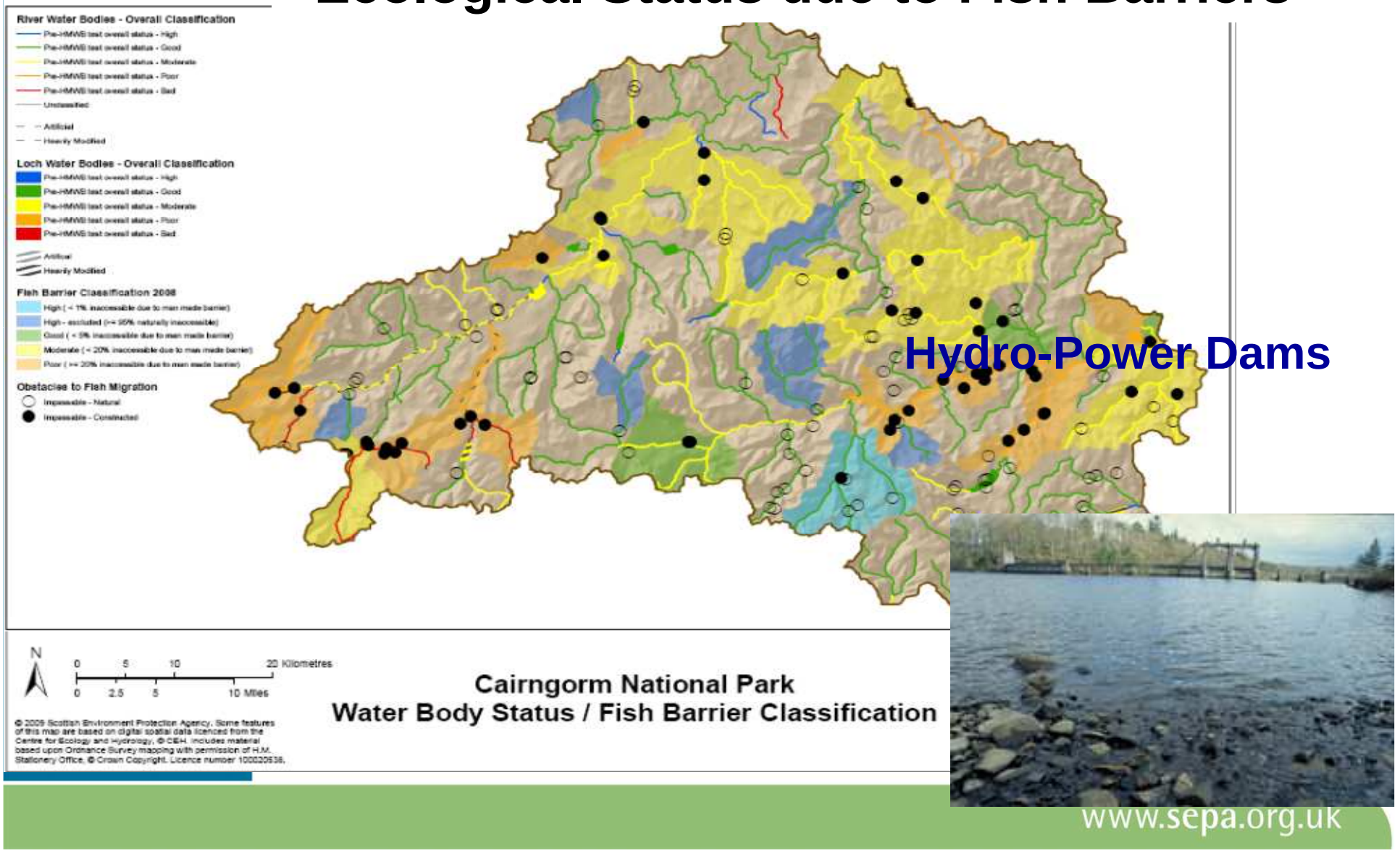
1.0% or 250 km?

Summary Points

- Local scale interventions have little impact on overall classification

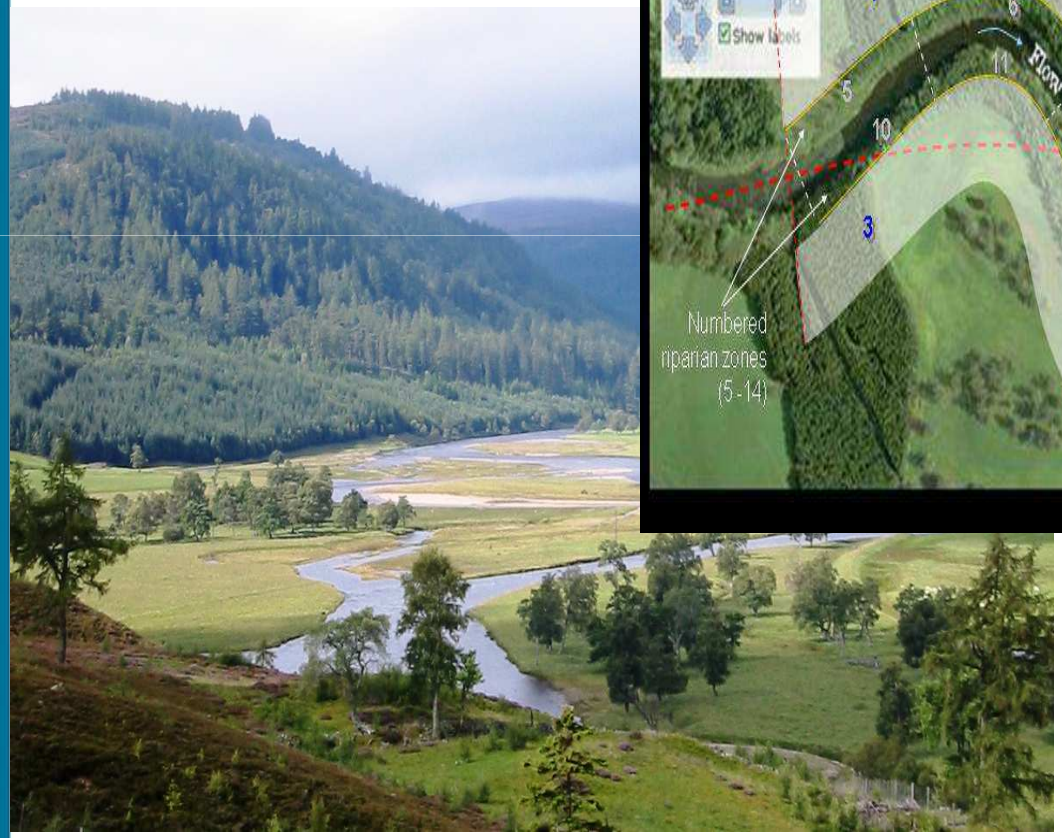
Cairngorm National Park

Ecological Status due to Fish Barriers



Hydro-Power Dams

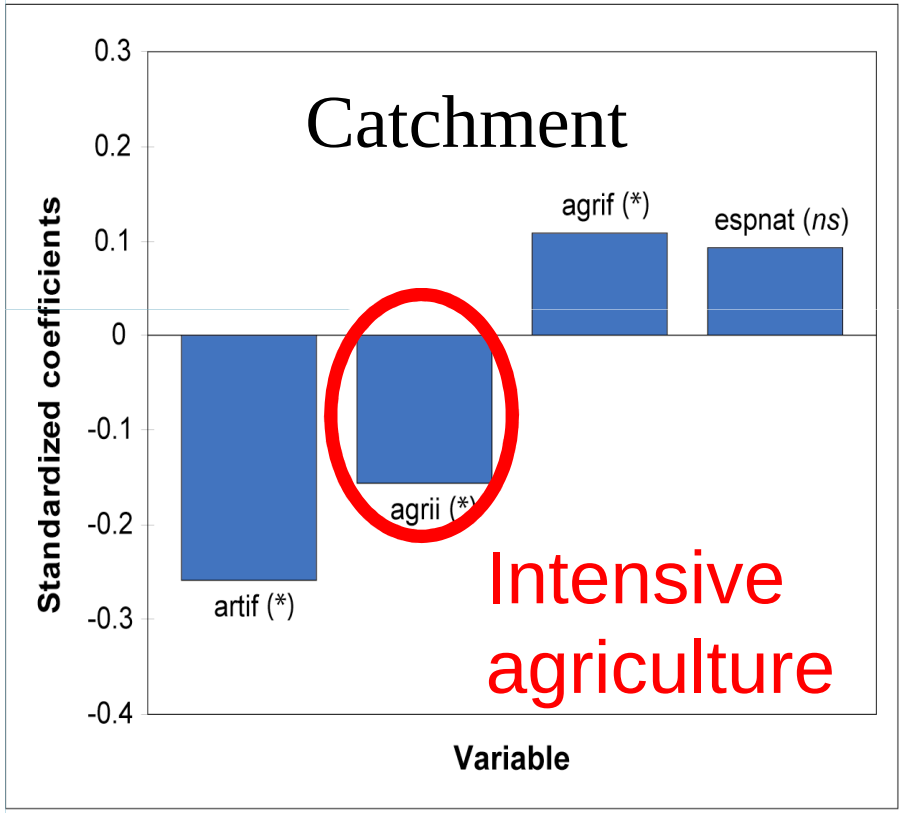
Management at Water Body Scale

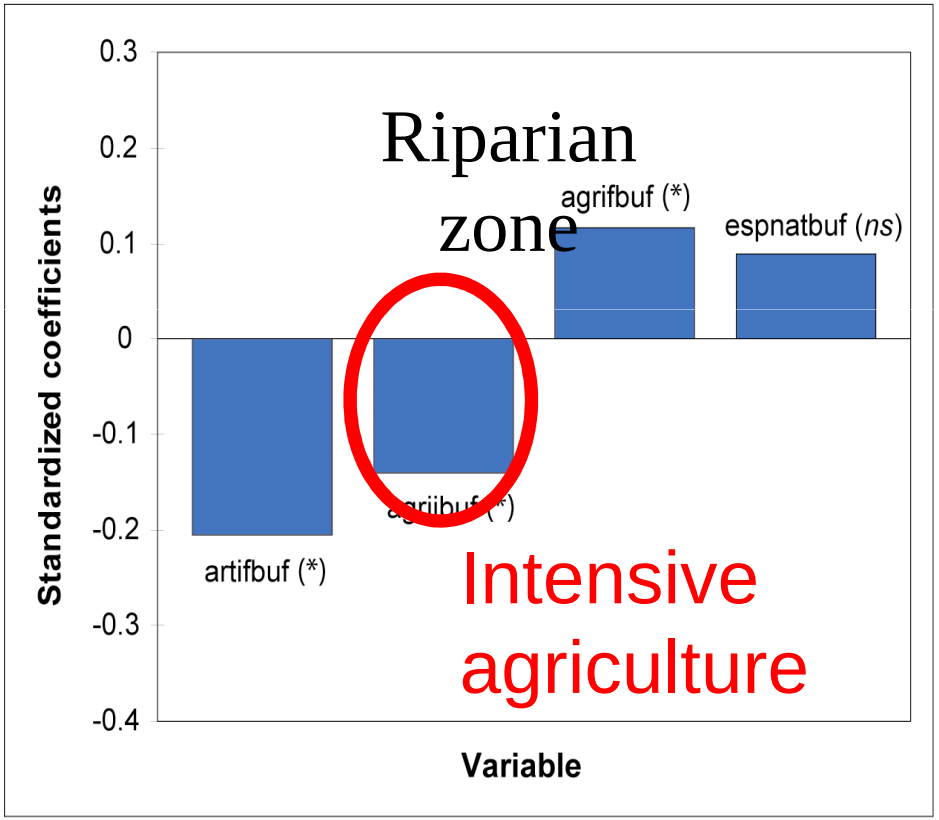


Summary Points

- Catchment scale measures - riparian buffer zones?

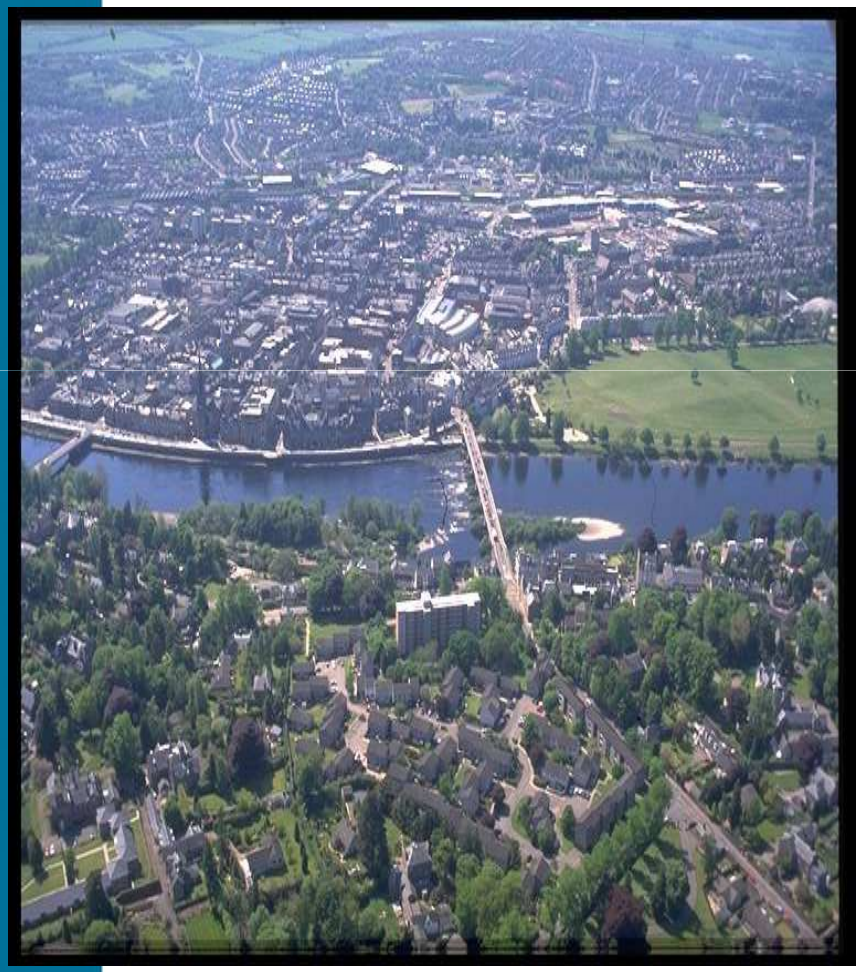
Influence of catchment and riparian land-use on in-stream ecological quality





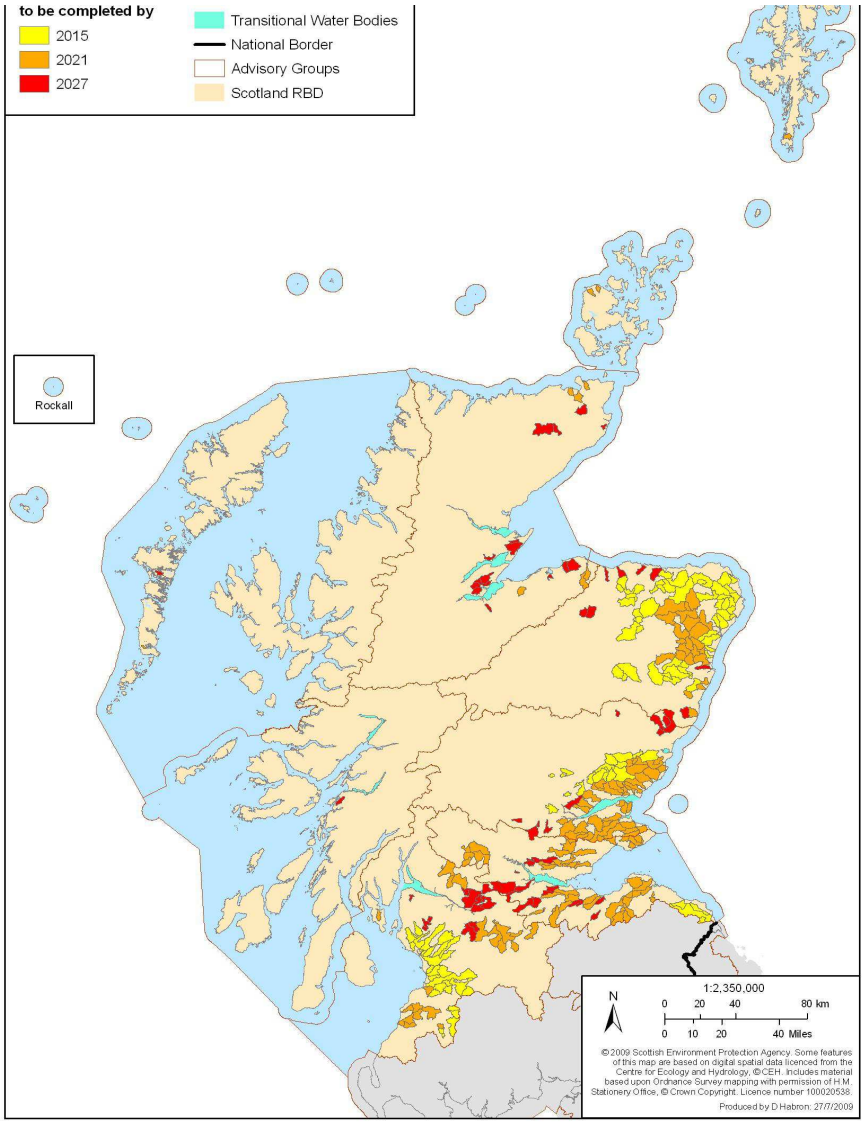
www.environment.fi/syke/rebecca

Management of the riparian corridor to achieve WFD objectives



- More achievable than entire catchments?
- More cost-effective?
- More practical restoration?
- Multiple benefits?

Diffuse pollution priority catchments in Scotland



2015

2021

2027

Regulatory approach to agricultural diffuse pollution in Scotland

Mandatory General Binding Rules

Diffuse Pollution Priority Catchments – success factors

- GBRs – regulatory underpinning
- Engagement – catchment walking
- Liaison with agricultural bodies (eg NFUS)
- Re-visits (79% uptake)
- Linkage to funding of measures (CAP; WEF)

Effectiveness of riparian corridors for WFD

- Good climate change adaptation measure!

- Measures ahead of scientific evidence?
- Likely to be a slow process unless whole catchment targeted in each RBMP cycle
- Funding of extensive measures – CAP
- Funding for morphological restoration – WEF
- Retro-fitting to urban water bodies

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