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SEPA Scottish Environment Protection Agency

The Water Framework Directive: assessing and evaluating progress, and reflections on where do we go now? – A Scottish Perspective.

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WWC, May 2015

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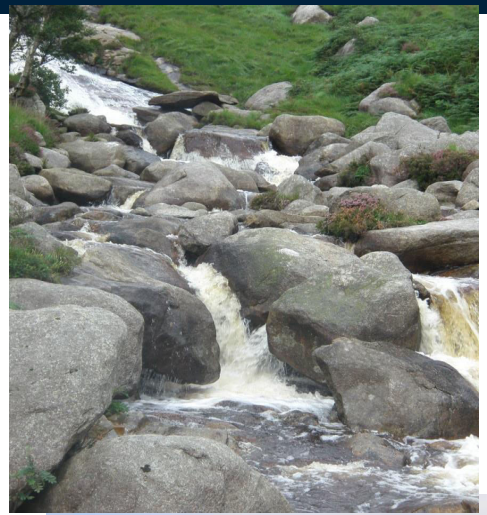
Effect and attribution of environmental policy

Four questions:

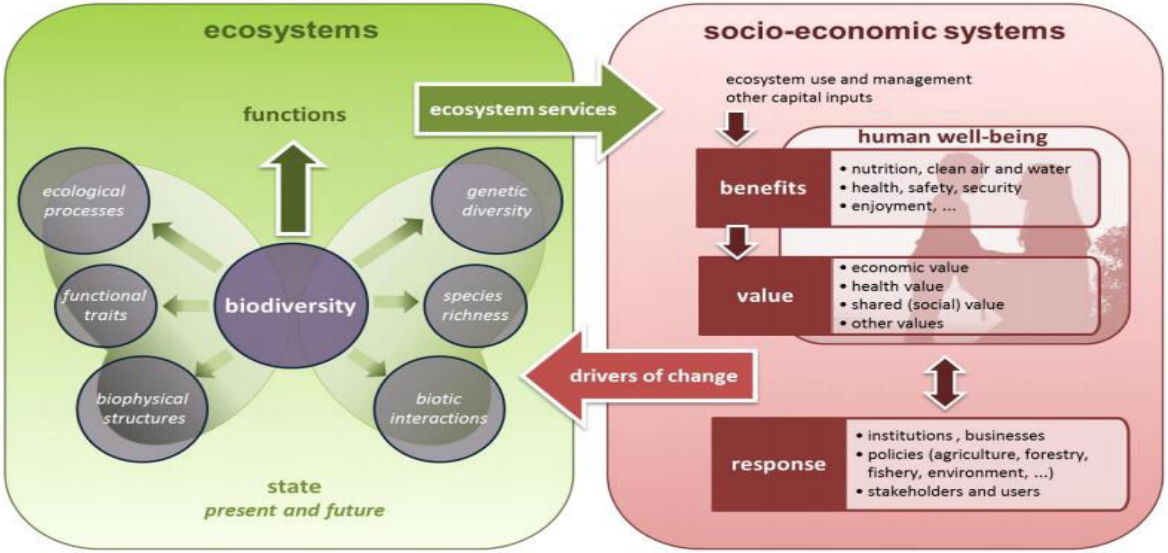
- what has implementation of Water Framework Directive achieved?
- what has it cost?
- what has it delivered, in terms of benefits? (and not only in monetary terms)
- what still needs to be done?

Our final question, if we don't believe we can answer these 4 questions, what are the gaps in knowledge and how can we fill them?



Framing the questions

- And what of the Ecosystem services framework, perspective on progress, efficiency and effectiveness- a potential solution



http://biodiversity.europa.eu/maes

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The balance sheet- costs

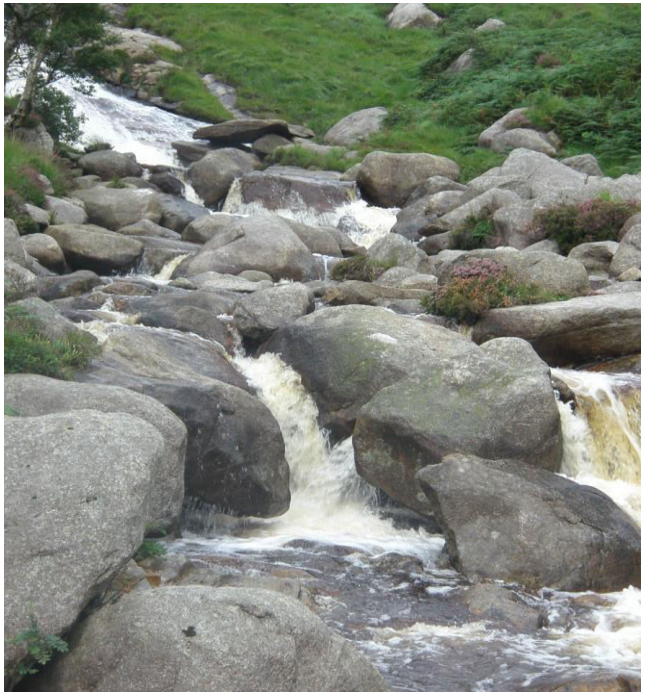
Investment estimated in region of Euros 50-300Bn to deliver:

drinking water and waste water, quantum and quality, raw water, chemical and ecological condition

hydromorphology, including physical barrier and constraint removal

management of point and diffuse sources

the connected regulation of levels and quanta of flows, including for fish management and hydroelectricity generation purposes



Can we discover more?

The more recent River Basin Management Plans (RBMP) reported to the EC further illustrate the emerging role of economics for supporting water management, very scattered and partial economic information being reported by EU member states with most often a lack of transparency on methods and assumptions. "Furthermore, limited coherent cost and benefit information is reported. As a result, building a common economics knowledge base, making direct comparative assessments of costs and benefits in different River Basin or extrapolating available economic information to perform an EU wide assessment of the costs and benefits of the WFD remain a difficult and very challenging task. " Mattheiß et al, 2012

Can we discover more?

Challenge 1: costs – connecting activity to cost to audit

- Costs – core elements in infrastructure spend; end of pipe/reticulated service pollution and input/output management
- £300-700m/a for extended Quality and Standards lifetime.
- Many uncaptured investments by companies, councils and trusts and other voluntary bodies
- EU studies & reports from EEA, IEEP, WRc etc

The balance sheet- benefits

- State of the Environment Report (SOER, 2015) states that "Europe is far from meeting water policy objectives and having healthy aquatic ecosystems".
- "In 2009, 43% of surface water bodies were in good or high ecological status, and the Water Framework Directive objective of reaching good ecological status by 2015 is only likely to be met by 53% of surface water bodies."
- Still some way to go?

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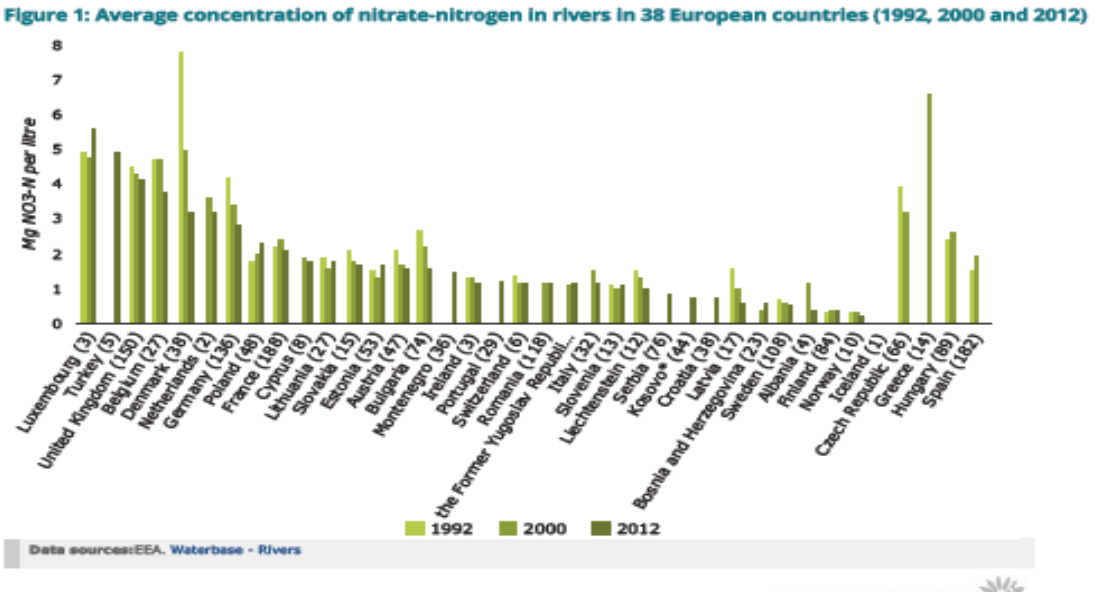
The balance sheet- effects- at European level

- Monitoring trends, changes, impacts
- at local, national and European levels- aggregated
- Subject to some uncertainty and the challenge of attribution of effect to cause



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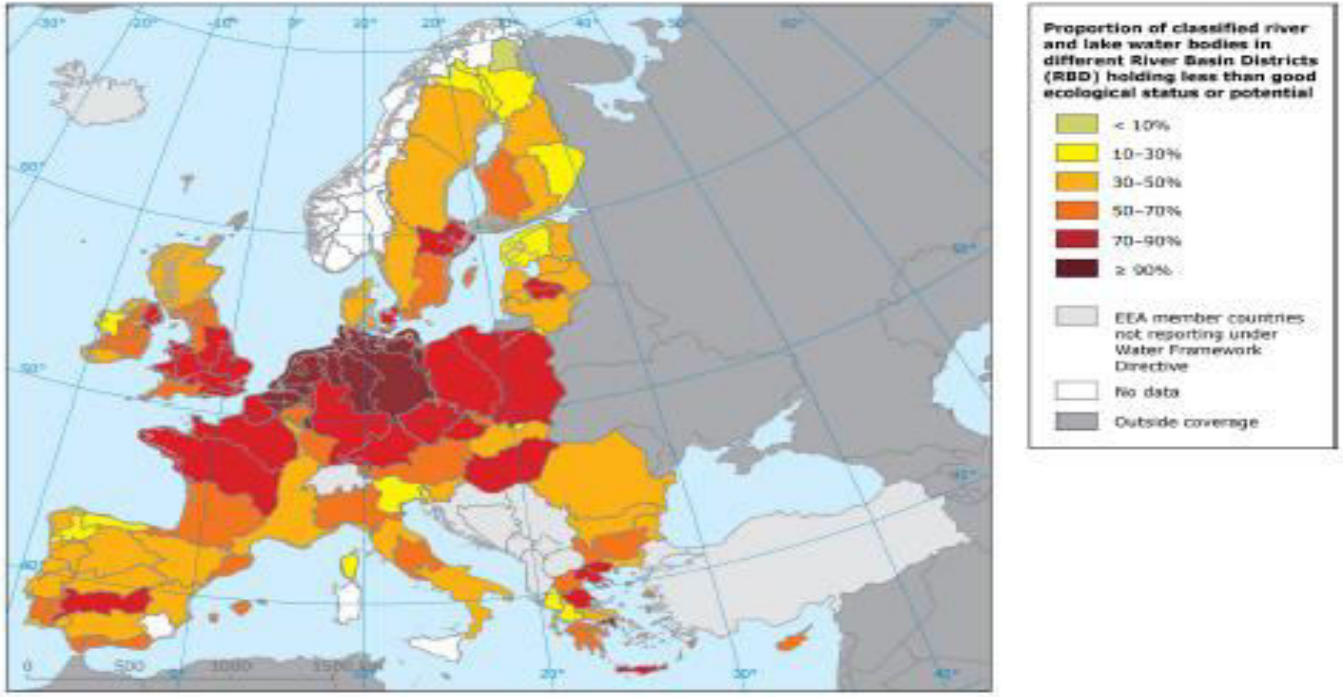
River basins, at European level

Map 1: Proportion of classified river and lake water bodies in different River Basin Districts (RBD) holding less than good ecological status or potential



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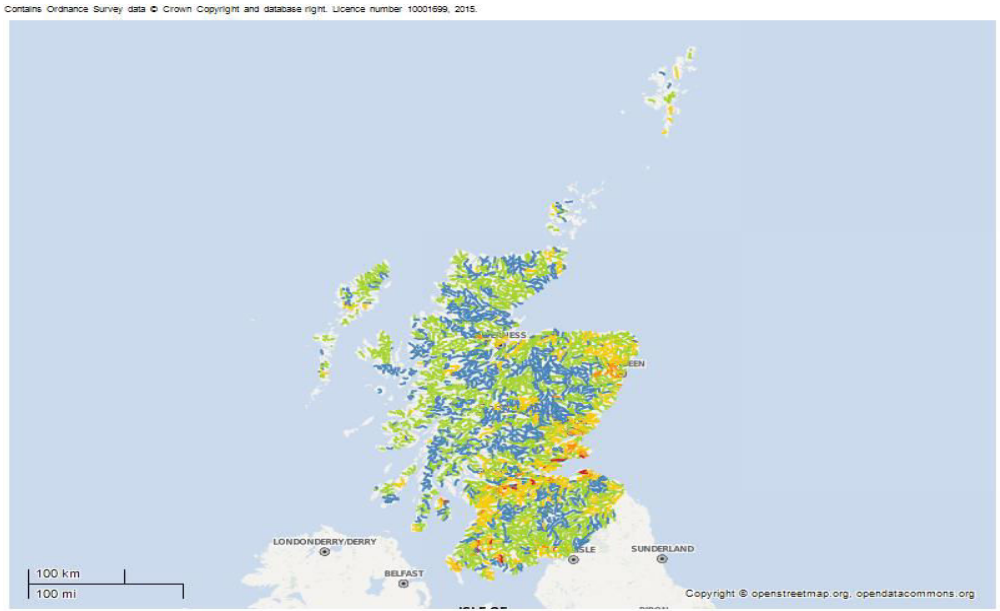
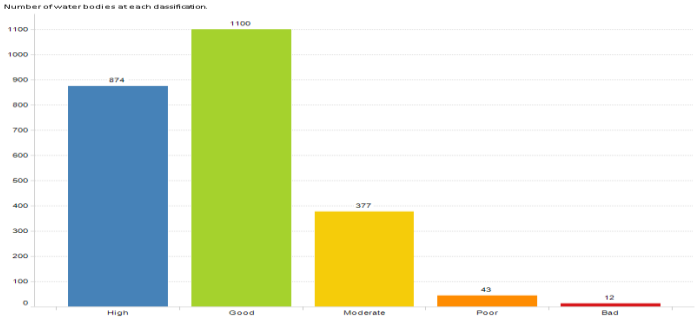
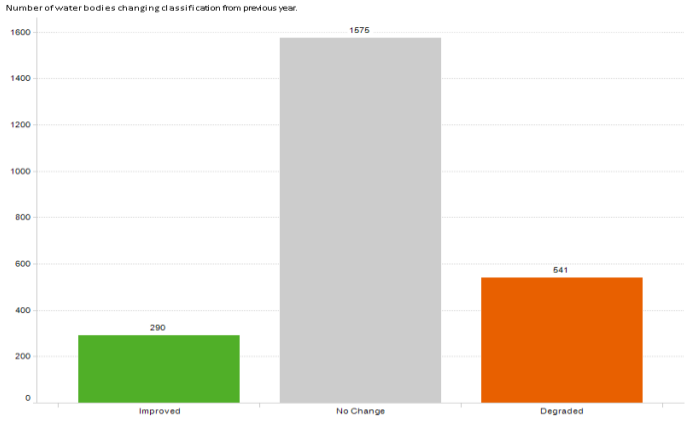
And in Scotland







http://www.environment.scotland.gov.uk/get-interactive/data/water-body-classification/

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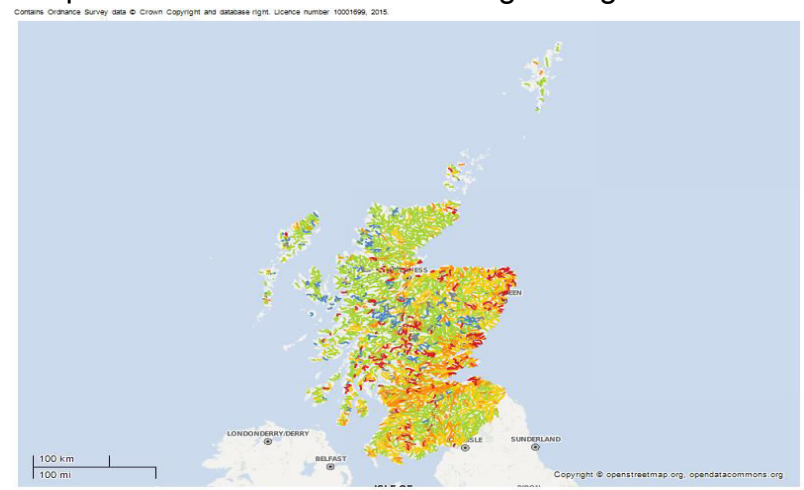

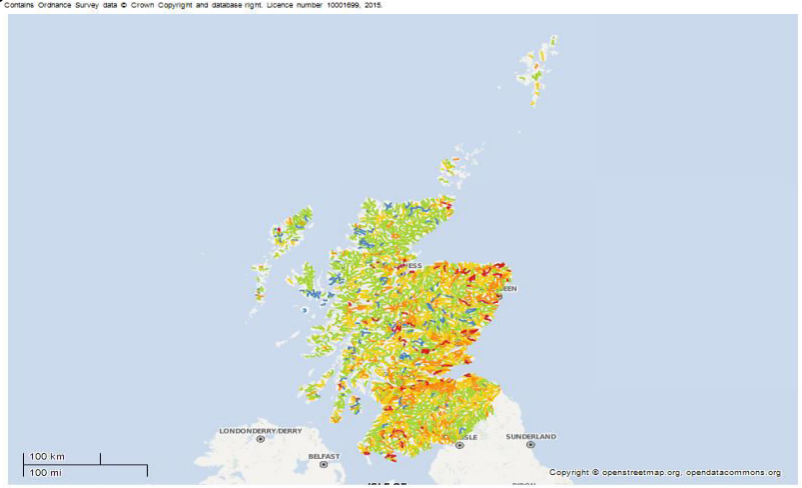

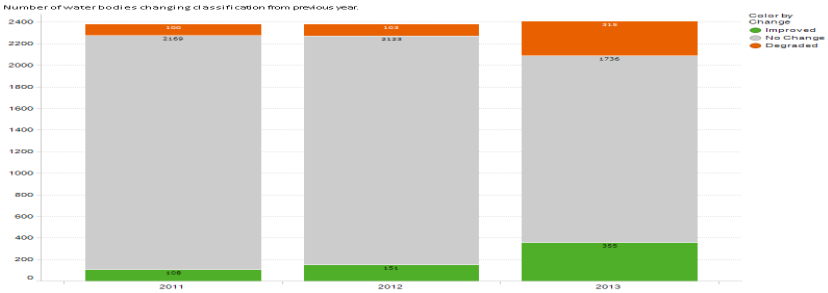

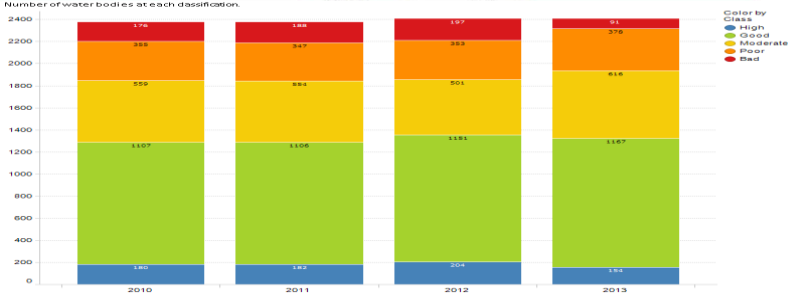

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Challenge 2

Data quality and quantity: modelling and inference, indicators and uncertainty; and attribution – cause and effect

1. Original condition data – So(w)E by State/RBD/catchment
2. Original state of regulated and non-regulated inputs and attributes. Level of engineered watercourses, presence of hydro, pollution loading, level of abstractions, GW exchange, mining, agriculture, water supply and sewage “markets” etc
3. Regulatory impacts during the cycle(s)
4. OECD discussion; what is it worth doing? Economic impacts? What works “best”?
5. Social engagement and citizen science

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Ecosystem services

- At the broad level of social benefits, the ONS has recently valued freshwaters in the UK as, “at least £37B to the economy”. ENDS (2015). This move to including natural capital into national accounts raises further interesting questions about future assessments of costs and benefits for such policy efforts as relate to WFD.

- Within a Scottish context, the ecosystem approach is being increasingly adopted but always
- What does society value?
- How to decide which investments to make and prioritise?
- Criteria of success- compliance, improved GES %ages, others?

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Ecosystem services delivery at local levels

- The status of many water bodies is adversely affected by rural diffuse pollution and/or the effects of past engineering or drainage works that have damaged habitats and left barriers to migratory fish.
- Addressing these impacts is challenging and has required the development of new approaches in partnership with a range of different organisations. *In Scotland, SEPA officers have walked over 5,000 km of watercourses to assess diffuse pollution impacts, and visited over 2,500 farmers and land managers to advise on remedial action.*
- The good news is that as many as nine out of ten of those land managers are now known to be implementing agreed action plans to reduce diffuse pollution.

Challenge 3

Cost and Benefits guiding better delivery?

- Data
- EU v Member State v Basin District
- 80:20 – costs of the last 50 or 10 or 1 %
- For HMWs?

” The total EU-wide costs for the implementation of all WFD relevant measures for the first planning cycle …range (based on average cost figures per inhabitant, per water body and per km^2) somewhere between 230 billion Euros and 824 billion Euros.” Mattheiß et al.

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summary

Achieved The evidence of comparative costs and benefits of the WFD across the EU requires to be strengthened and made available for independent audit.

Costs C, € 10B a; Scotland - c. £0.5-1B a, equivalent additional expense by other parties, public + private,

Benefits c € 10B /a; Scotland – given 100% possible benefits similar and higher

Where next? Scotland – dealing with diffuse pollution; enduring change; hydromorphology; quantifying value.

EU - consistent and systematic approach supported by data; Framework; KE and support for fast implementation

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Overall

- clear need for more and better data on costs and benefits and impact measures
- greater assessment consistency and a real EU-wide framework for measures, costs and benefits
- real impacts and benefits are being achieved and innovation is emerging; costs balanced with benefits
- the story at this point is only partly told and only partly delivered; Scotland performs well in EU context
- much more structure and rigour would help to know what has happened, what works and allow us all to be able to describe, communicate and replicate that.

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