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Spatial targeting of catchment management interventions to improve drinking water quality using the CaRPoW framework

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Presentation Contents

1. The need for spatial targeting
2. Consultation with catchment management professionals
3. The CaRPoW framework
4. The River Ugie catchment
5. Results and discussion
6. Conclusions

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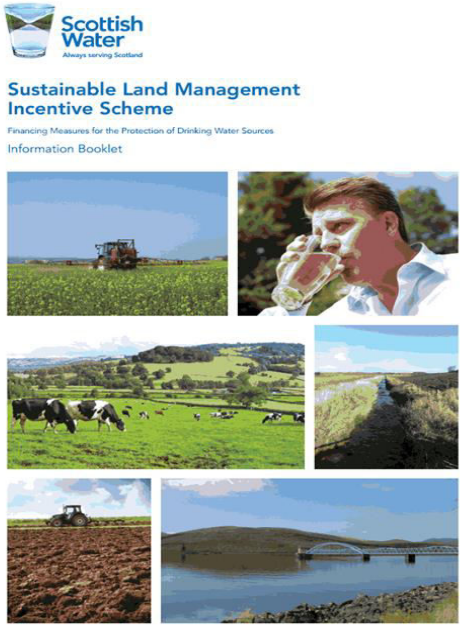
Spatial Targeting?

- Catchment management increasingly adopted
- Scottish Water Sustainable Land Management (SLM)
- Catchments inherently heterogeneous
- Multiple pollutant issues
- Investment must be effective



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Defining a Criteria

A criteria for a new framework was developed with input from…

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… to benchmark what the industry requires

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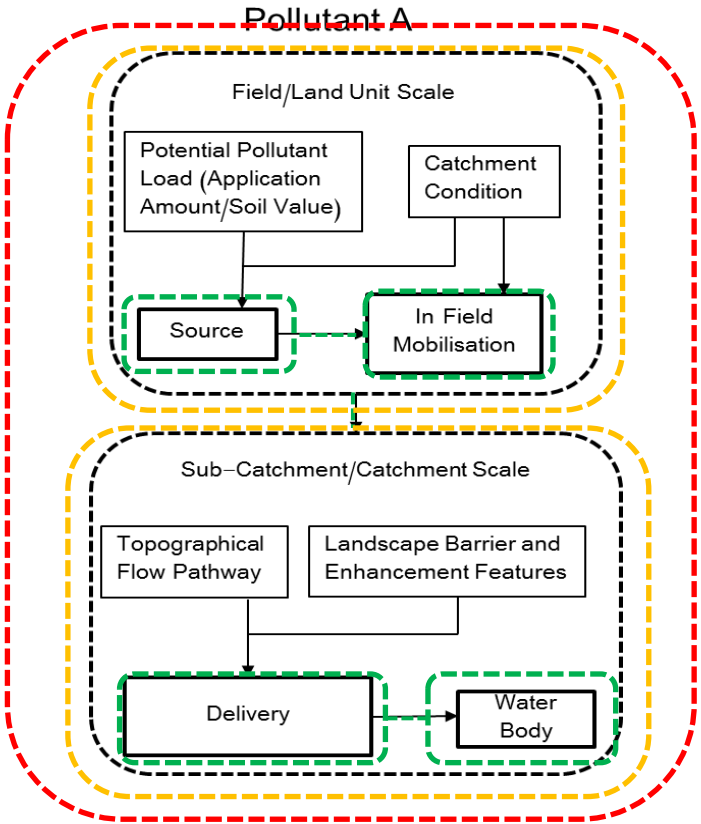
The CaRPoW Framework

Catchment $Risk_A$ =



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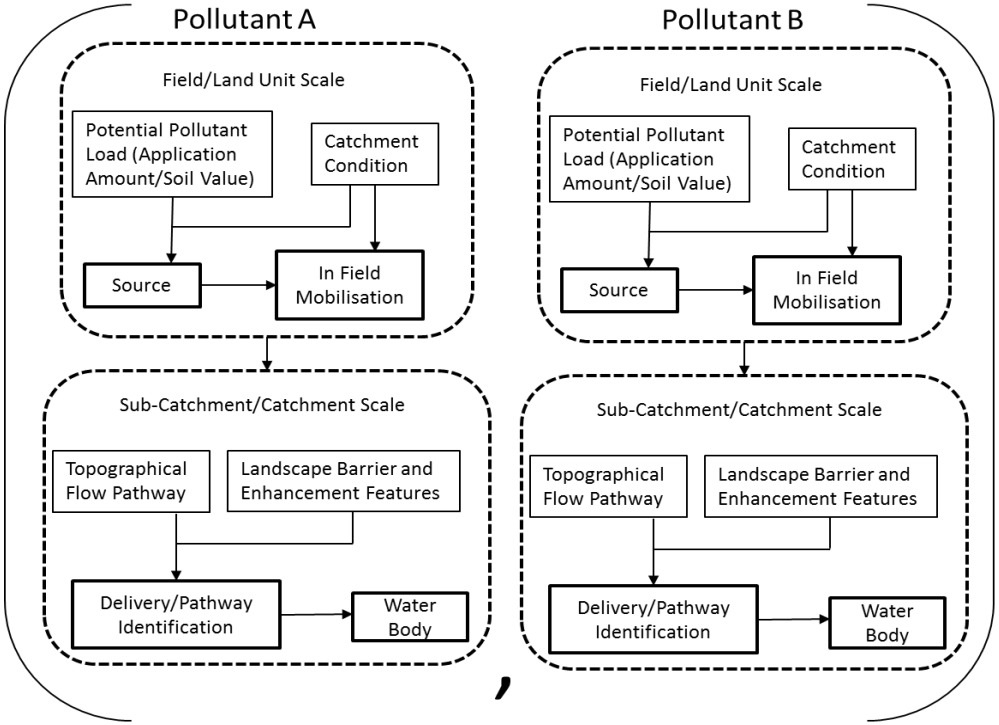
The CaRPoW Framework



= Catchment Risk

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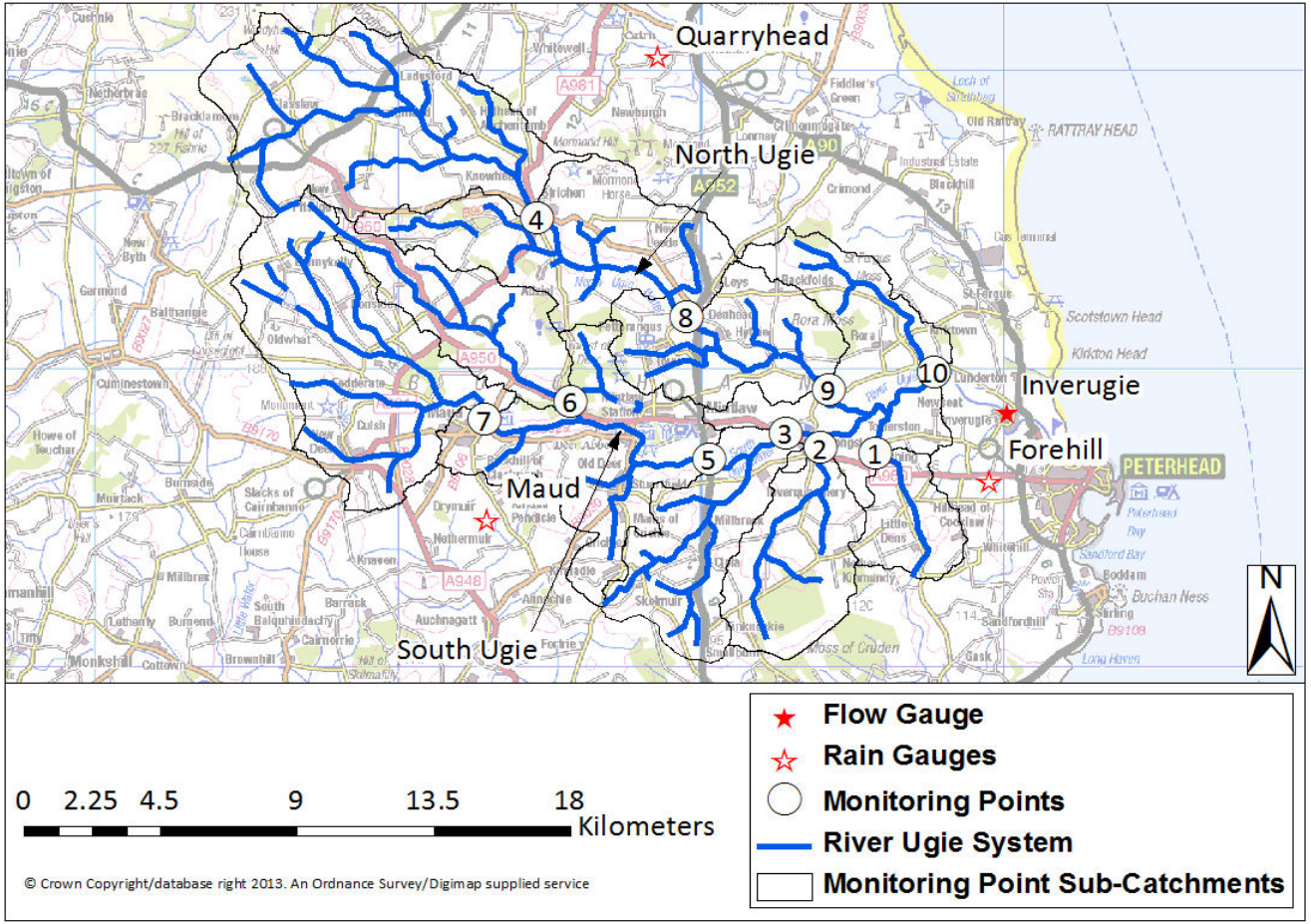
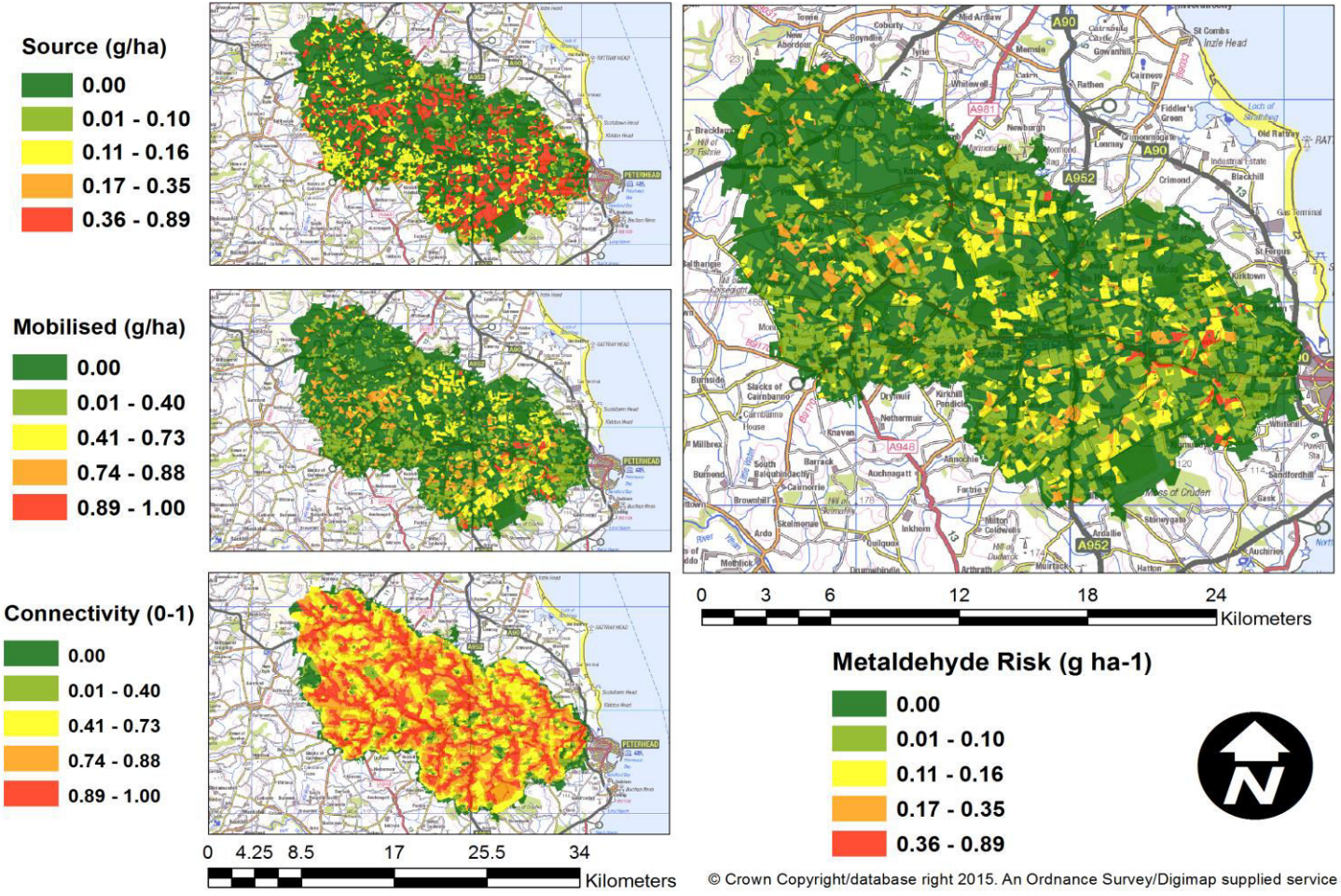
The River Ugie



Example Output - Metaldehyde

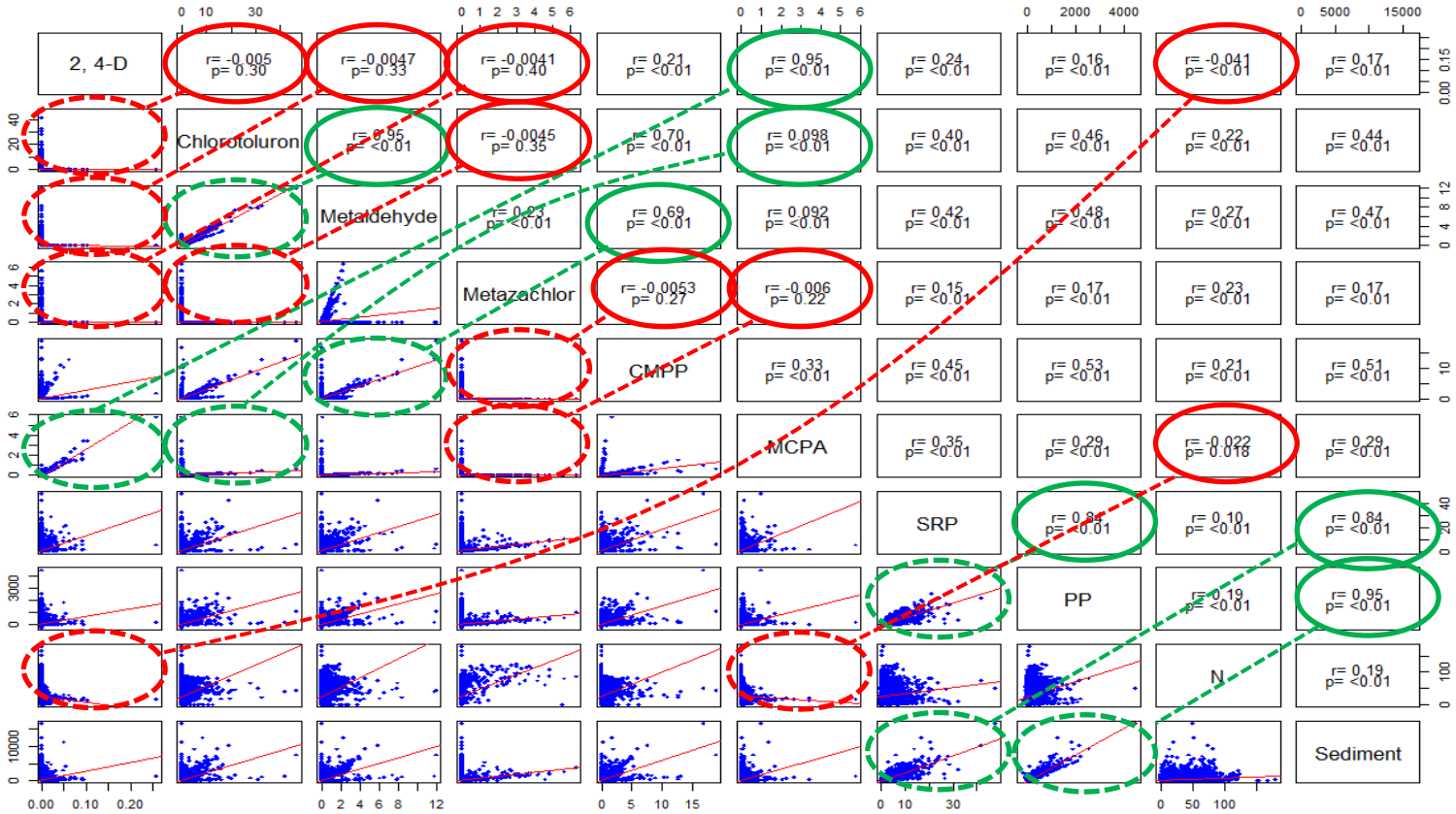


Spatially Valid?

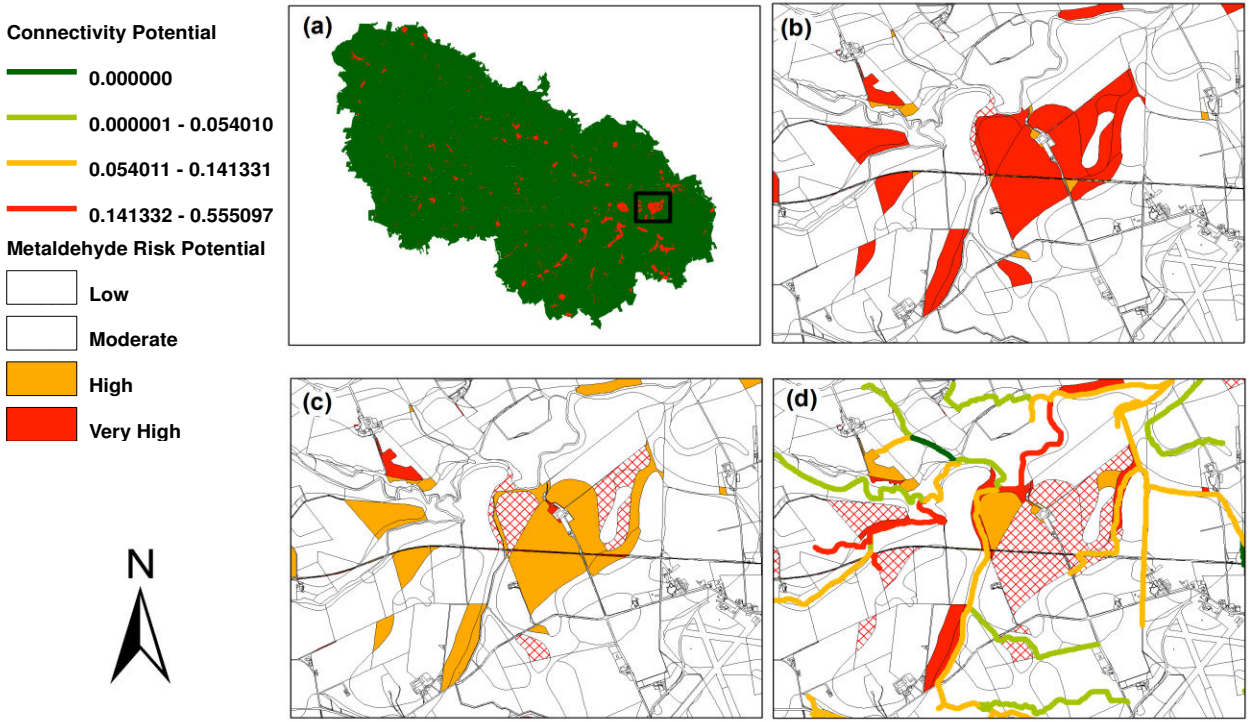
Best fit linear regression relationships between modelled and observed loads in the River Ugie (2012-2013)

Pollutant	Best Fit (R^2)	Significant ($P < 0.05$)
2, 4-D	0.5	Yes
Chlorotoluron	0.81	Yes
CMPP	0.08	No
MCPA	0.49	Yes
Metaldehyde	0.83	Yes
Metazachlor	0.85	Yes
Nitrate	0.93	Yes
Soluble Phosphorus	0.53	Yes
Particulate Phosphorus	0.26	No
Sediment	0.27	No

Shared Risks



Measure Selection – Metaldehyde and Chlorotoluron



(a) Shared high risk areas, (b) Source potential, (c) Mobilisation potential and (d) Connectivity potential

Conclusions

- Spatial targeting for catchment management required
- New framework needed to do this
- CaRPoW framework defines and compares risks of multiple pollutants
- Applied successfully to the River Ugie
- Next phase is to assess potential cost savings

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Thank You

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