

Our Flooding Research Challenges

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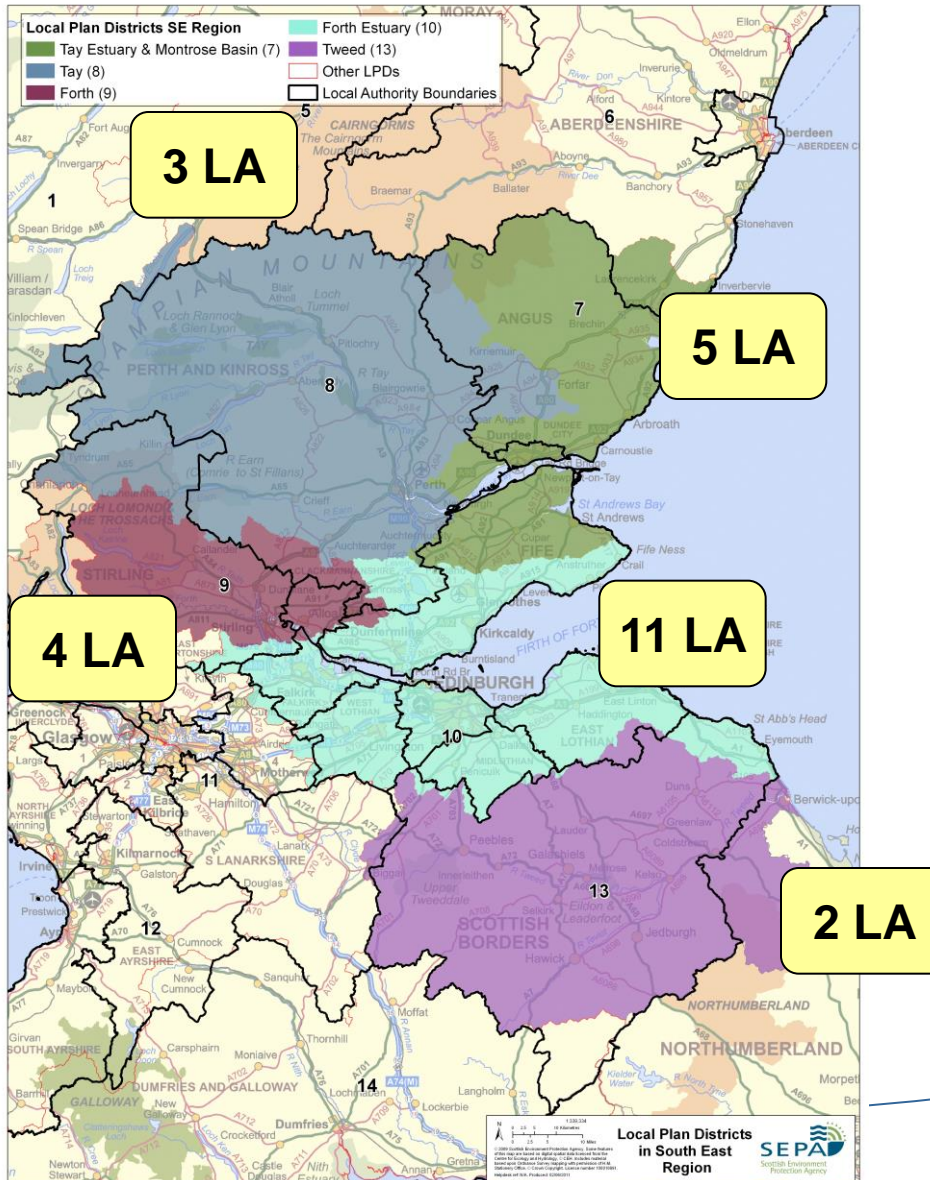
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SEPA

- 2004 – SEPA designated as a Category 1 responder under Civil Contingencies Act
- Flood Risk Management (Scotland) Act 2009

Planning Process



Flood Risk Management Strategies

Avoid increasing
flood risk

Prepare to reduce
impacts of flooding

Sustainable Flood
Risk Management

Protect to reduce
likelihood of flooding

Accept all or part of
flood risk

Specific
Measureable
Attainable
Relevant
Time-Bound

Our Responsibilities

Strategic Planning

Develop Flood Risk Management Strategies

Identify Potentially Vulnerable Areas

National Flood Risk Assessment

Develop Flood Hazard & Flood Risk & opportunities for NFM maps

Provide advice on planning applications

Front Line

Provide flood warning service

Hydrometric data

- Provision of good advice
- Partnership working
- A well informed public

Our aims

- Improve understanding of areas that can flood
- Improve understanding of the impacts of flooding (social, economic, environmental)
- Reduce the impacts of flooding
- Promote actions that reduce the impacts of flooding and deliver multiple benefits (are most sustainable)

Flood Warning Strategy 2012-16

- Flood detection and monitoring
- Surface water flooding
- coastal / tidal flooding
- Fluvial flooding
- Uncertainty in flood predictions
- Flood warning service development
- Skills, expertise, knowledge

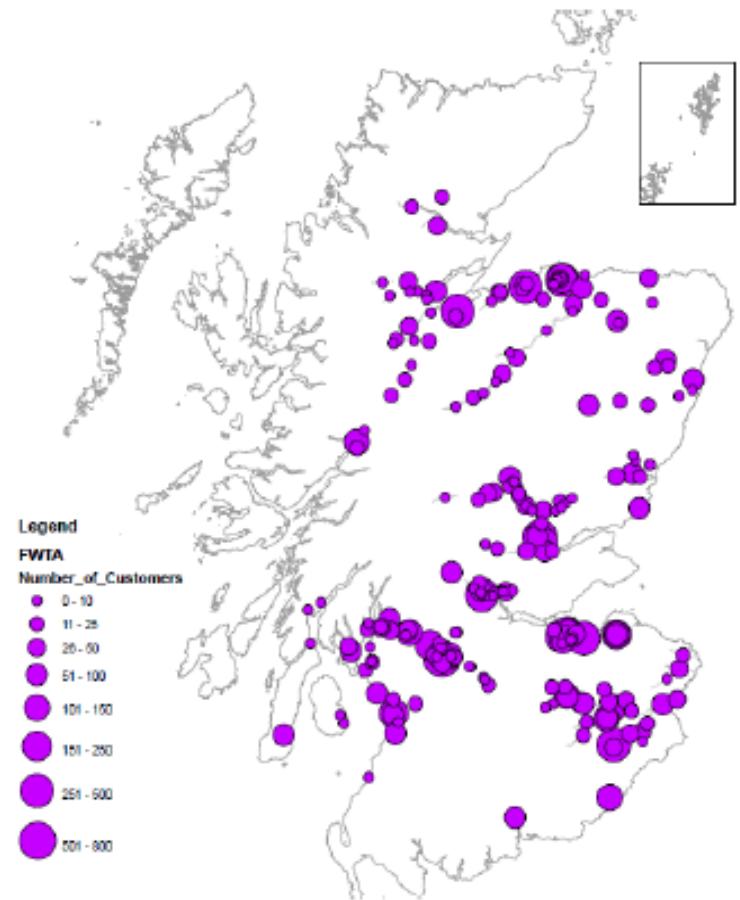


Figure 1: Map illustrating registered customers of the Floodline service per flood warning target area (August 2012)

Flood Warning

- How to value the hydrometric network & relative value of sites: sustainable asset management
 - Where is it most important to have this data?
 - Where are there gaps in gauge or radar data?
 - Are we making best use of this data / can it be provided in a better way?
- How can we determine if a warning has been issued successfully?
 - Were there flooding impacts / was it a near miss
 - Were any actions taken to mitigate impacts
- Quick, practical post event analysis
- Do our flood warning products enable people to take appropriate action / can these be improved?

Future mapping: data

- Improve knowledge of flood defences: location, condition and effectiveness
- How can national coastal mapping be improved - can wave overtopping be included or priority areas to include this be identified.

Future mapping: type

- What do the public want to know / is easiest to understand & take appropriate actions
 - Are joint probability maps beneficial?
 - Where do joint probability events cause the greatest flood risk in Scotland?
 - Which joint probability models would be most appropriate to use?
- Should other visualisation tools be provided to complement or aid interpretation

Future mapping: models

- Should certain parameters in national models vary to better reflect local variation i.e. losses, roughness, storms? How should this be done?

Appraisal of appropriate actions

- How to assess human health impacts, what datasets are available & how can these best be used
- Improved knowledge of coastal erosion risk and past erosion rates
- Tools to help quantify the potential impacts of NFM and help local authorities assess where these techniques are most appropriate

Better understanding of changes in flood risk due to receptor changes

- Urban Creep: what is the baseline, can we quantify potential for this, should models vary regionally when considering future risks
- Changes in rural land use
- Industry Patterns
- Population demographics

How do we determine thresholds for evidence of climate change?

How to track progress

- Tool to track properties at risk – when is this due to real change in risk, when is this due to change in perception of risk, when is this due to changes in methods used.
- How can we best gain flood event information? Is it best to use social media /citizen science.
- How to track when our planning advice has been taken into account

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Flood Risk Management