

Using participatory stakeholder mapping to identify land and water management pressures across Scottish catchments

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1. Introduction

There is a need to **quantify and optimise multiple benefits** from catchments to meet growing demands of **food, water and energy security**, and other services such as **biodiversity** and **livelihoods** of local people. However, there are **uncertainties** surrounding ecosystem service modelling, climate change and stakeholder opinion which is a further challenge for catchment management.

The overarching aim of the project is to explore possible **trade-offs** and **synergies** between catchment uses using novel stakeholder engagement methods and to find ways to optimise landscape scale ecosystem service provision in Scottish catchments.

The specific aim of this phase of the study was to identify possible areas of **trade-off and conflict between stakeholder groups in three Scottish study catchments**.

2. Methods

Three Scottish catchments with diverse pressures and stakeholder groups were identified. Within these, farm advisors, environmental and water regulator staff, and academics (Fig. 1; n=43) took part in 90 minute stakeholder surveys which included a participatory mapping exercise. Here participants identified areas within their catchment in which they perceive conflicts to exist between different stakeholder groups. A short survey was also carried out to capture stakeholder's views on the drivers behind the issues, possible solutions and likely future developments.

3. Results

- Wide areas within the three catchments were identified as areas of potential conflict
- Conflict hotspots where issues were raised by a large number of stakeholders:
 - South Esk: Brechin, mainly due to a local flood protection scheme (Fig. 3)
 - Spey: 1) Aviemore, largely due to increases in local development (Fig. 2)
2) Large hydro power water abstraction vs. downstream users, such as fisheries
 - Ayr: hotspots were more widely spread across Ayr beach, urban and mining areas, agricultural land and upland areas of forestry and moorland (Fig. 4)

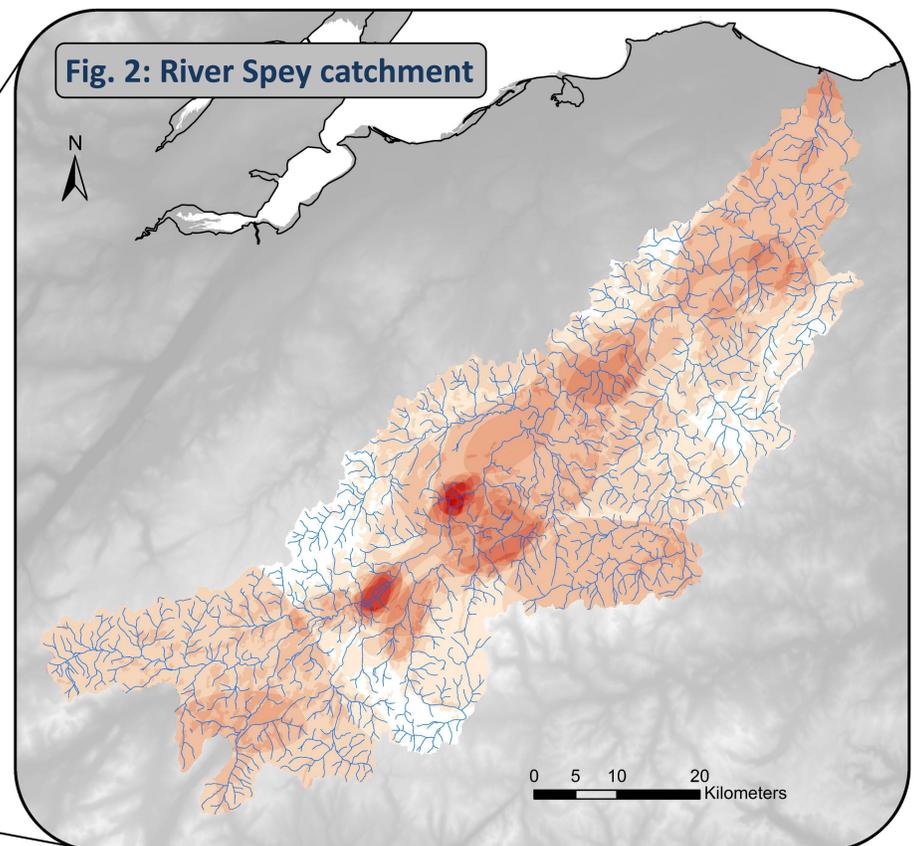


Fig. 2: River Spey catchment

Fig. 1: Stakeholder groups that participated in mapping exercise.

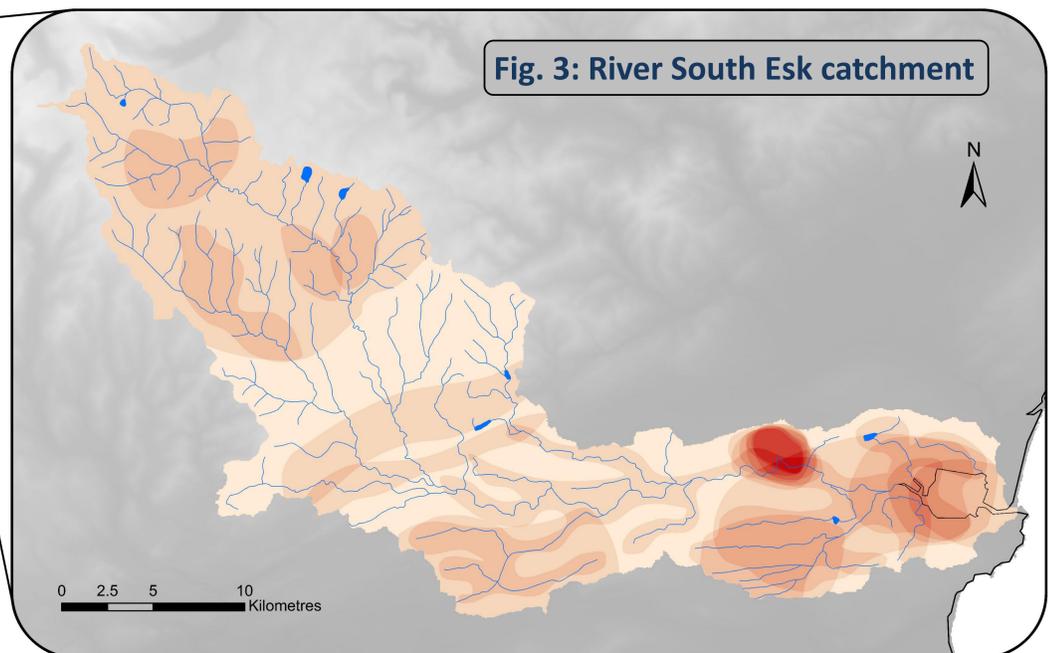
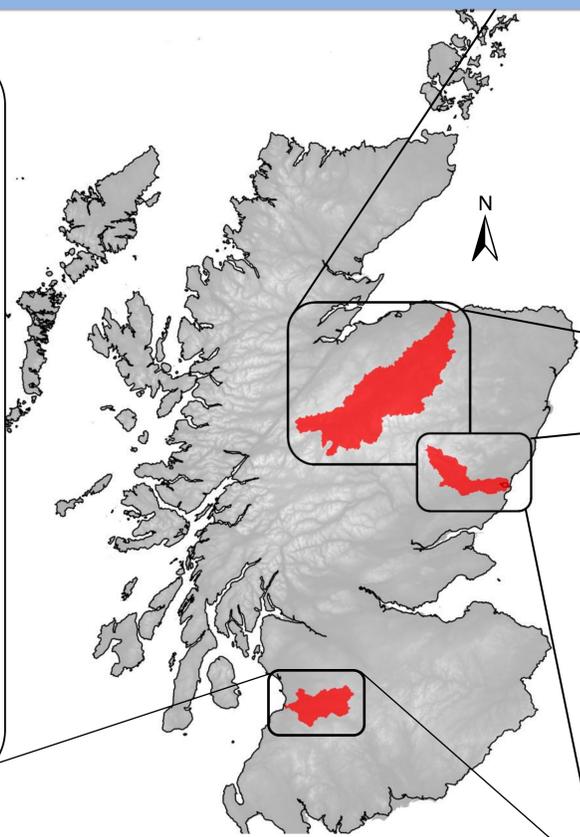


Fig. 3: River South Esk catchment

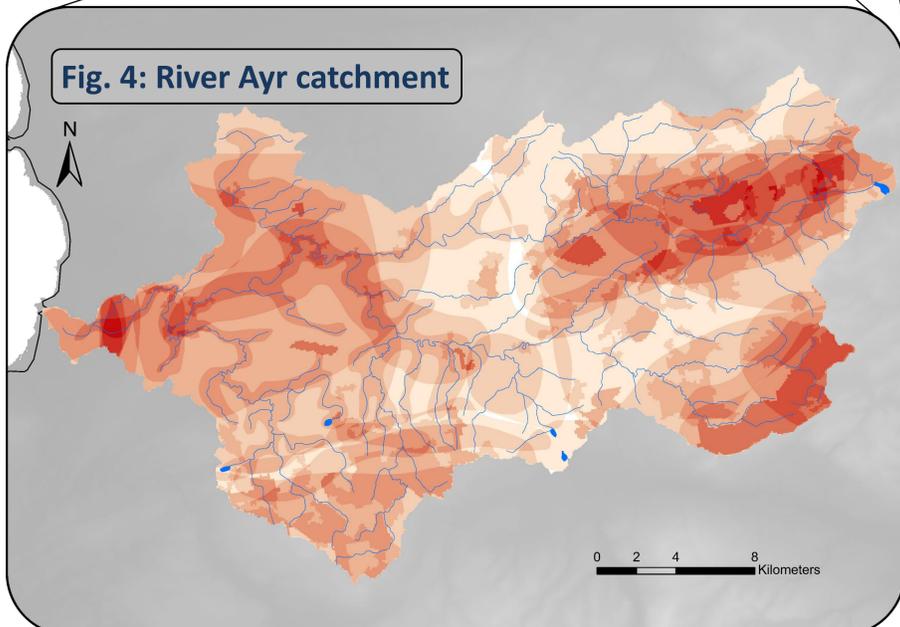


Fig. 4: River Ayr catchment

4. Future

Further analysis of the data will include **regression analysis** and a comparison between stakeholder groups within the three catchments. These risk maps may be used to identify areas of potential conflict and hence inform land and water management to help promote stakeholder **collaboration** and find **solutions to conflict** in the three Scottish catchments. The results from this analysis and the wider project's findings will provide a platform to develop a transferable **socio-ecological framework** to guide decision-making and future catchment management across Scottish catchments.

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