

The role of Scotland's inland water bodies in promoting blue-health in rural communities

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1. Background

- The natural environment offers a range of health and well-being benefits.
- Previous research has focused mostly on green space with water bodies or "blue spaces" commonly overlooked (Fig 1).
- Exposure to blue space has been associated with greater physical activity (Fig 2) and improved mental health – recently termed "blue health" benefits.
- Health and well-being benefits associated with inland water bodies (rivers, lakes, canals) remains an understudied area.
- Scotland's inland aquatic environments may therefore be under-utilised assets for health promotion.

2. Knowledge Hierarchy

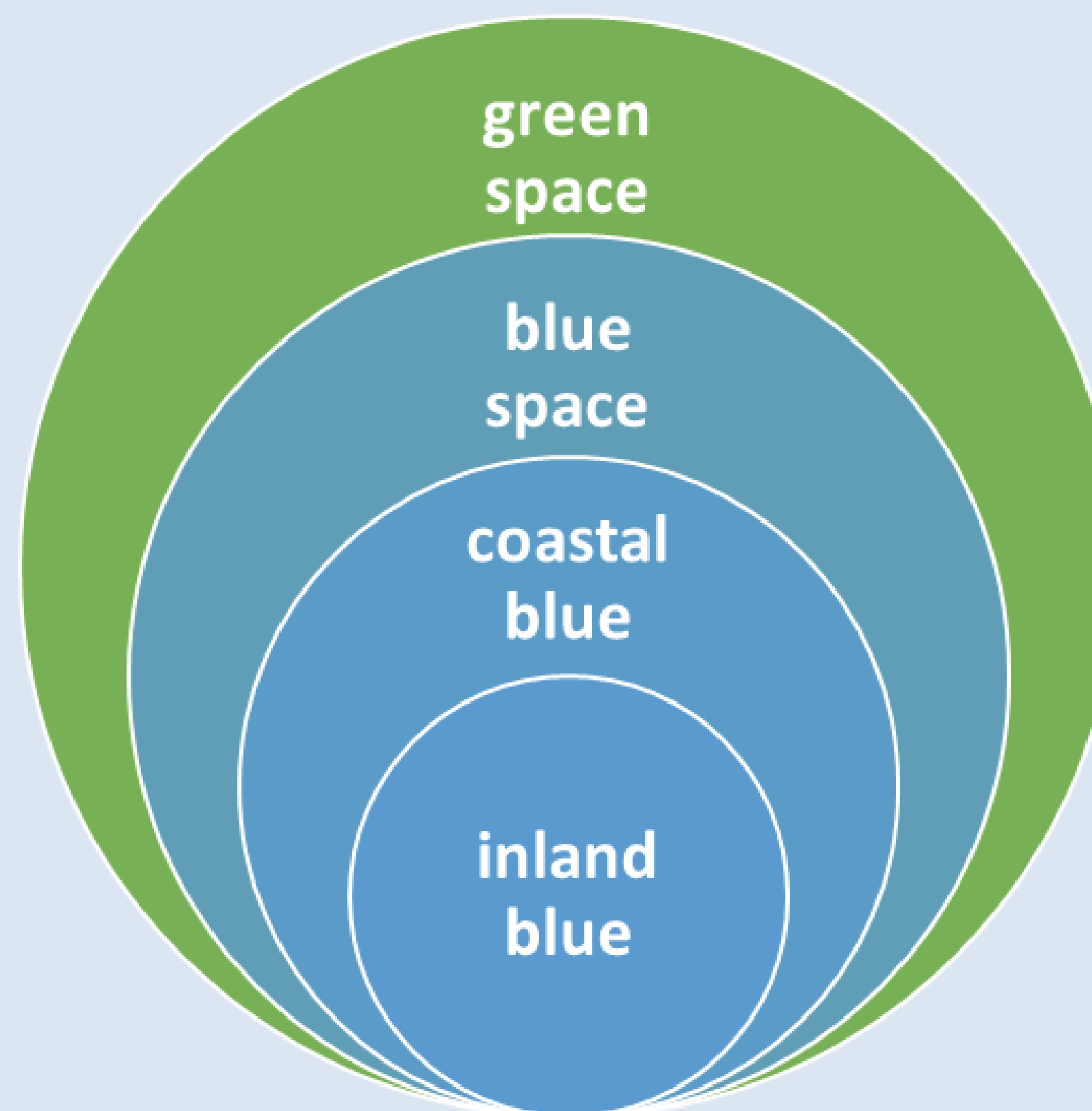


Figure 1: summary of current natural environment and health knowledge

3. Project Aims

The project will adopt novel economic techniques and range of quantitative and qualitative methods to:

- Investigate the health and well-being (see Fig 3) and wider social economic benefits provided by Scotland's inland waters.
- Determine how perceptions of health and wellbeing benefits associated with inland waters vary across different water-user groups.
- Quantify how variations in water quality of inland waters can impact the provision of 'blue-health' benefits.

4. Blue-Health



Figure 2: Open water swimming in Loch Lomond

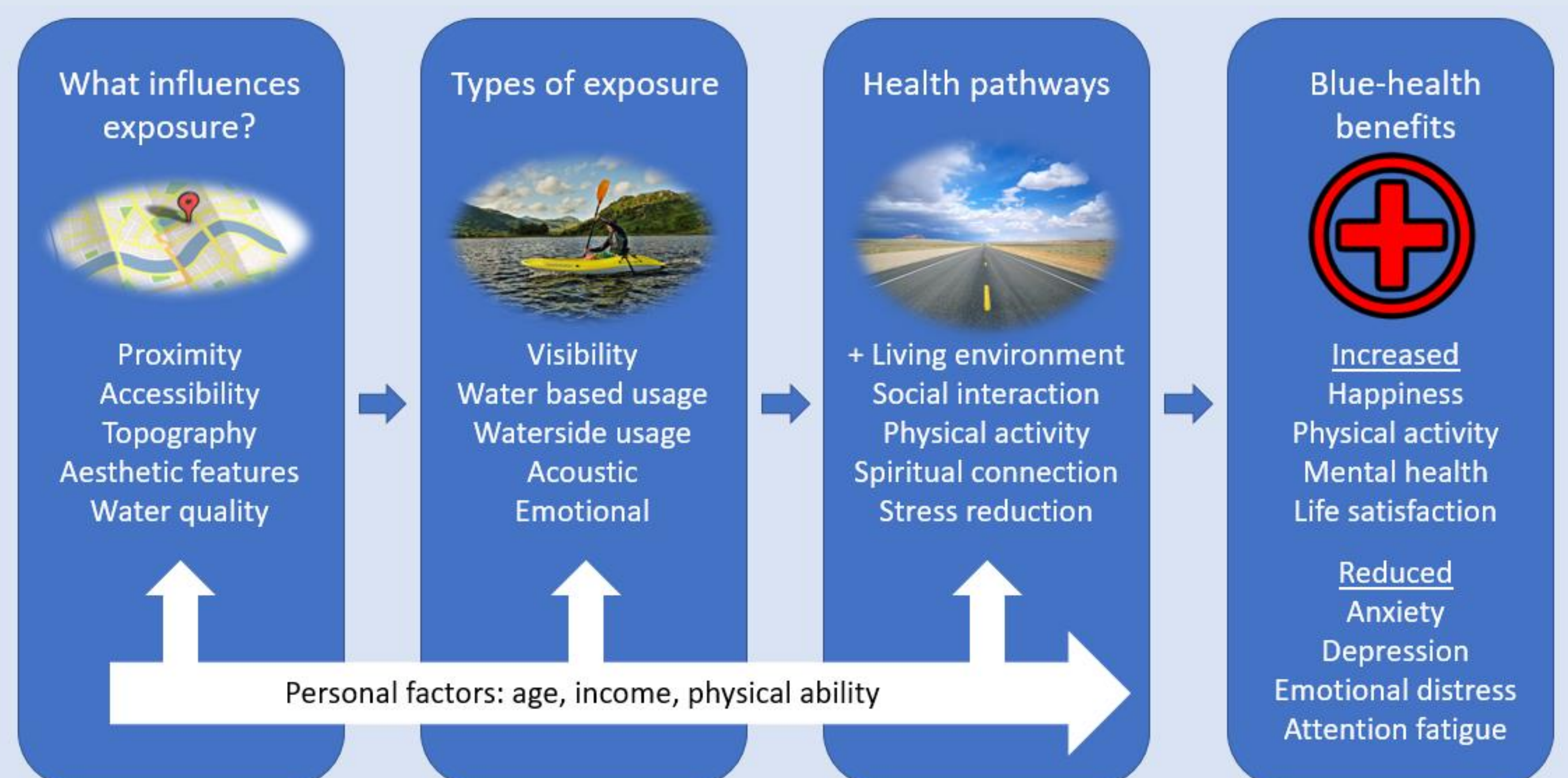


Figure 3: Blue health benefits are dependent on personal factors, exposure to blue space and occur via various health pathways

5. Research Approach

- Novel economic element:** National scale contingent valuation and choice modelling survey to estimate blue health value.
- Field work:** subjective wellbeing questionnaire of blue space users.
- Participatory GIS-based** questionnaire to understand spatial distribution of blue health benefits (see Figure 4).
- Rural engagement:** focus groups to understand barriers to access to blue space.
- Scenario analysis** to estimate future blue health impacts due to climate induced water quality changes.

6. Methods Example

Q) Please use the drawing tool to show where you participate in physical activity on and/or around Loch Leven?

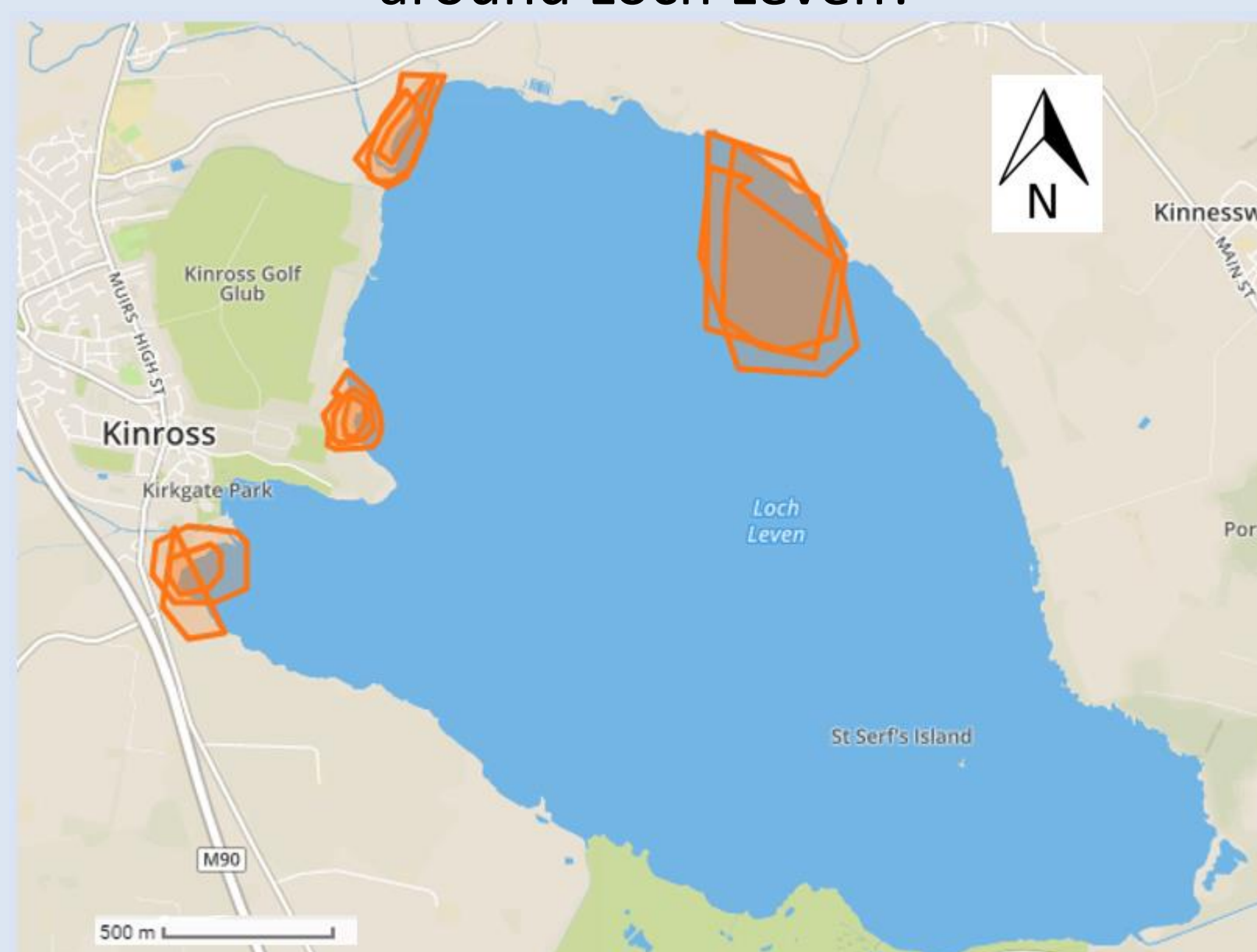


Figure 4: Physical activity mapping of Loch Leven using online participatory GIS questionnaire



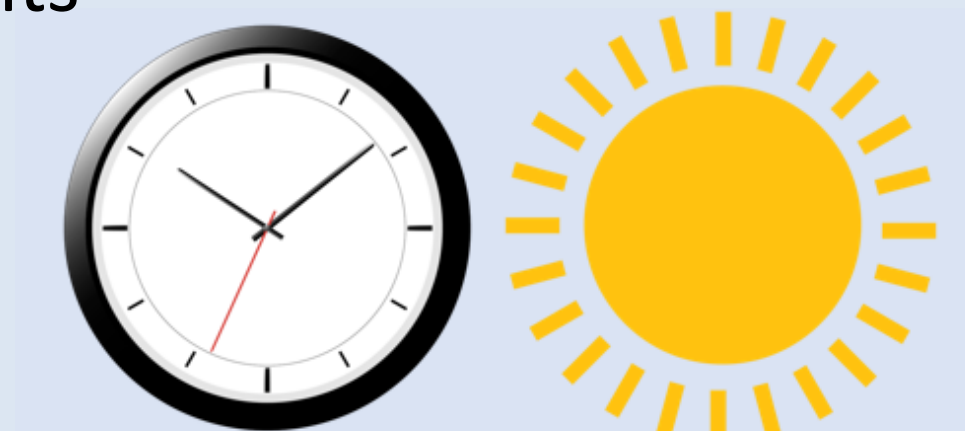
7. Project Implications



Synergism: evidence to integrate health promotion and water management



Policy: monetary valuations of blue health benefits



Climate adaptation: long term sustainability of blue health resources