



Methodologies for sampling fish populations in Scottish freshwater lochs

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Project background

The monitoring of fish populations in large waterbodies is challenging. Fish behaviour and ecology varies by species, freshwater lochs are all different, and current fish assessment methods have limitations. However, fish are an important part of a loch ecosystem, and several Scottish freshwater fish species are afforded legislative protection in many cases. This means that there is a need to effectively monitor fish populations for management and conservation purposes and when assessing the potential impacts associated with large scale developments e.g. pumped storage hydro-electric developments.

To effectively monitor fish populations and be able to assess the potential impacts on them, it is important to understand the following:

1. The type of ecological data required to make robust assessments of the fish population present.
2. The suitability of currently available monitoring methods to obtain the information required to make these assessments.
3. The best practical approaches to implement fish monitoring programmes which fulfil data requirements.

Addressing the issue (methods)

This project provided a brief overview of the currently available sampling methods of fish populations in Scottish freshwater lochs. Four primary sampling methodologies were identified along with six supporting sampling techniques. An expert-led workshop was

carried out to explore themes identified in a literature review. This workshop was designed to place current knowledge of fish monitoring methods into the context of developing practical guidelines for fish monitoring in Scottish freshwater lochs.

Outcomes

The outcomes of this work included specific considerations of the following:

- Ecological data requirements
- Suitability of survey methods
- Site specific considerations
- Long-term outlooks

Stakeholders identified high data quality and reproducibility as priorities for fish monitoring programmes, over ease of application, cost, and processing time.

A monitoring framework is provided in the report as a means of ensuring that appropriate sampling methods are selected and that surveys are properly designed to meet data requirements.

Going forward

Currently, there is no 'one size fits all' approach to monitoring fish populations in freshwater lochs. The practical solution is to follow a consistent framework which minimises environmental impacts, while ensuring data needs are met.

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To access the main report for this project, please visit: crew.ac.uk/publication/methodologies-for-sampling-fish-populations