

Industrial Based Research (ACCA6029)

The Improvement of Freshwater Fishing Data in England and Wales with GIS

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Introduction

- Data Engineer at Arup, working with various types of data, including geospatial data.
- Recently took up angling as a hobby and encountered challenges in finding reliable freshwater fishing information.
- Found fishing data to be fragmented and outdated, making it difficult to comply with rules and regulations.
- Identified a lack of centralised and accessible data for freshwater fishing.
- The proposal seeks to explore the potential of GIS to improve data accessibility for anglers and regulatory authorities.



ARUP



Background to Proposed Research

Literature Review

Historical Perspective on Recreational Fishing in the UK

- Fishing transitioned from a survival skill to a leisure activity by the 15th century.
- 1865: Introduction of the rod licence, initially protecting salmon fishing, later extending to other species.
- Post-World War II: Significant growth in recreational fishing due to improvements in equipment and transport, leading to easier access to fishing spots.

Economic and Social Impact

- Freshwater fishing in England and Wales contributes £1.46 billion to the economy annually.
- Supports 27,000 full-time equivalent jobs.
- Over 900,000 anglers fish in freshwater in England and Wales each year.
- Decline in fishing licence purchases since 2010, despite the steady participation rate.



National Angling Strategy (2019-2024)

Strategy Overview

- Developed by the Environment Agency, Angling Trust, and NRW to boost participation and improve data accessibility.
- Focus on making angling more inclusive and sustainable.

Key Objectives

- **Increase Participation:** Attract more people, especially younger and underrepresented groups.
- **Simplify Regulations:** Make fishing rules clearer and easier to access.
- **Enhance Data:** Support decision-making with accurate and up-to-date data.

Challenges

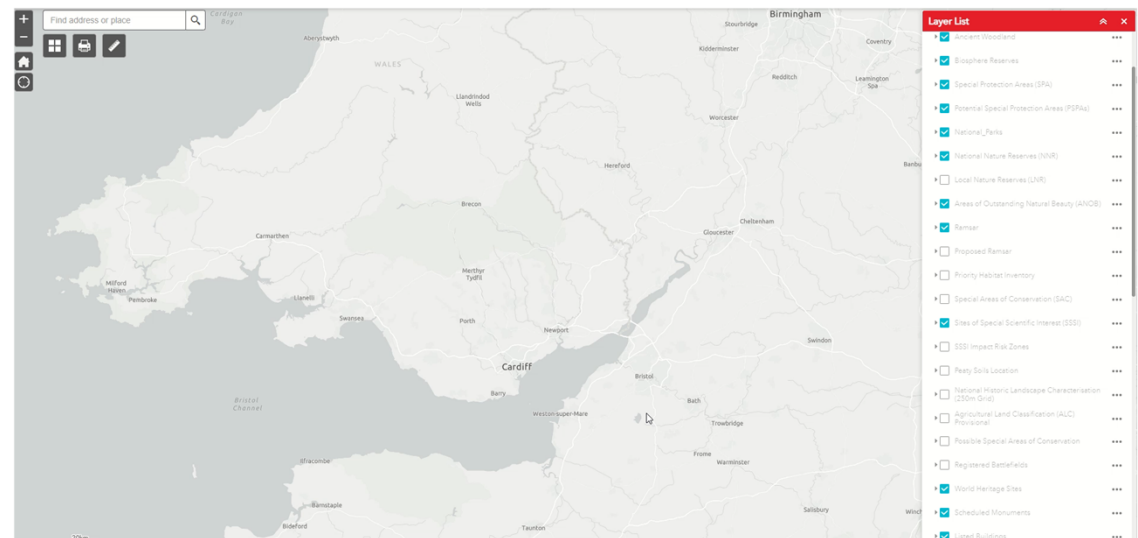
- 54% of anglers are unsure where to find reliable information on fishing locations and regulations.
- Only 34% of anglers feel confident in understanding the regulations at different fishing spots.
- 50% of non-anglers cite lack of accessible information as the primary barrier to starting.



How GIS Can help

A possible solution

- A powerful tool for capturing, storing, analysing, and visualising spatial data.
- Links data to geographic locations, enabling users to see relationships, patterns, and trends on a map.
- Widely used across industries for environmental monitoring, urban planning, and infrastructure management.
- Different user groups (anglers, regulators, environmental agencies) can filter data based on their specific needs (e.g., accessible fishing locations, pollution zones)
- GIS can enhance the user experience by centralising fishing data and making it more accessible.



How GIS Can help

A possible solution

HS2 Railway Project

Created a digital story map using GIS to communicate environmental impacts, making it easier for stakeholders to access and understand the information

NHS Fife

Used GIS to map and classify green spaces across 45 healthcare sites, meeting biodiversity reporting requirements and enhancing local ecology with projects like wildflower meadows and allotments.

Welsh Water

Developed a Water Source portal using GIS to monitor 136 drinking water catchments, improving water quality management and sustainability by integrating spatial data from multiple sources.



Research

Aim and Objectives

Aim:

To create a publicly accessible freshwater fishing database with integrated geospatial data.

Objectives:

1. Identify necessary data for regulators and anglers.
2. Develop a database schema that meets these needs.
3. Pilot the system with a sample dataset.
4. Create a user-friendly web-mapping service.



Methodology

Philosophy

- **Phenomenology:** Focus on anglers' experiences through surveys and interviews.

Approach

- **Inductive:** Data-driven, starting with a small sample and expanding based on observations.

Data Collection

- **Questionnaires:** Gather input from anglers and non-anglers to shape the database.

Implementation

- Use **ArcGIS Pro** to map fishing locations and develop a user-friendly web platform.

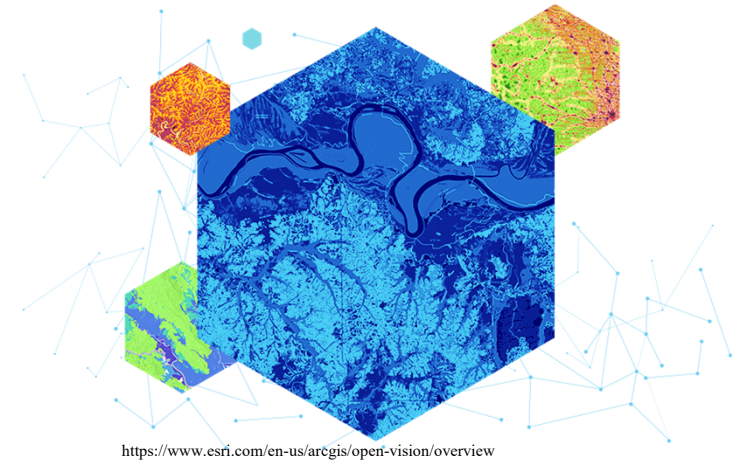


Risk and Limitations

- Challenges in data collection and validation from diverse sources.
- Potential costs for maintaining the web platform.
- Environmental and ethical considerations (overfishing, privacy, digital divide).
- **Key Point:** Managing these risks through careful planning and stakeholder engagement.



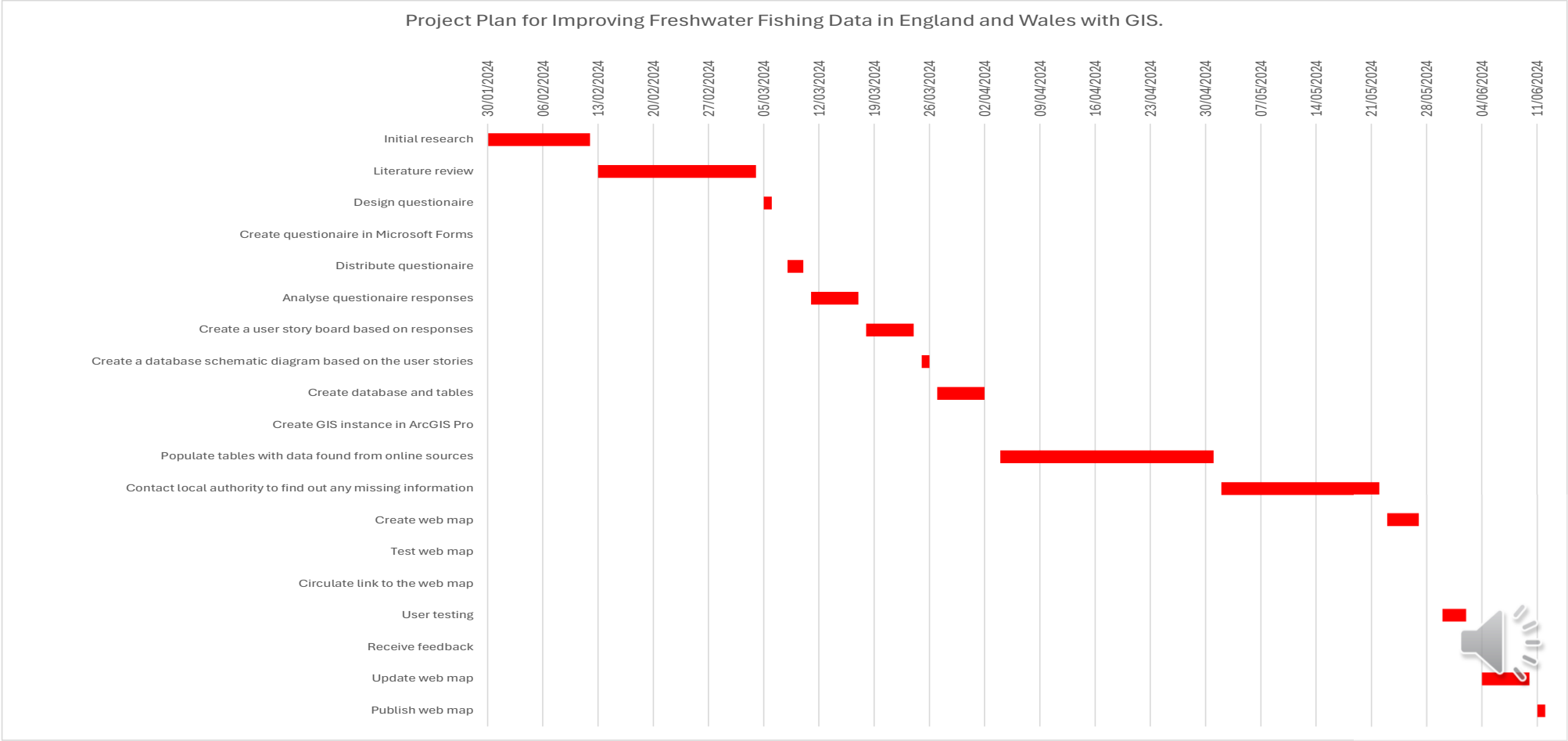
Project Resources



- **Hardware:** High-performance laptop for geospatial processing.
- **Software:** ArcGIS Pro, FME, SQL Server, Microsoft Forms, and Excel.
- **Information Sources:** Data.gov.uk, Datamap.gov.wales, Natural England Open Data.



Project Timeline



Potential Impact on Industry

Enhanced Data Accessibility

The research will make fishing data more accessible, helping anglers locate venues and essential information like parking, restrictions, and boundaries, improving their overall experience.

Economic Benefit

Improved information accessibility could boost participation in fishing, increasing revenue from rod licenses, equipment sales, and day tickets, benefiting local businesses and the fishing industry.

Better Data Integration

Using open datasets will allow better integration with other data sources, helping authorities cross-reference information, such as linking fishing data with sewer spill data to improve safety and environmental monitoring.



Thank you for watching!



Link to Presentation

<https://www.youtube.com/watch?v=6x7RvuVMrkw>

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