A river's digital twin
Looking at river health through a systems lens

River health is important

Poor river health results in species loss, which is directly contributing to a UK-wide biodiversity crisis. Unfortunately, only 14% of UK rivers have good ecological status.

To address this issue, we need to understand the complex system of a river's ecology
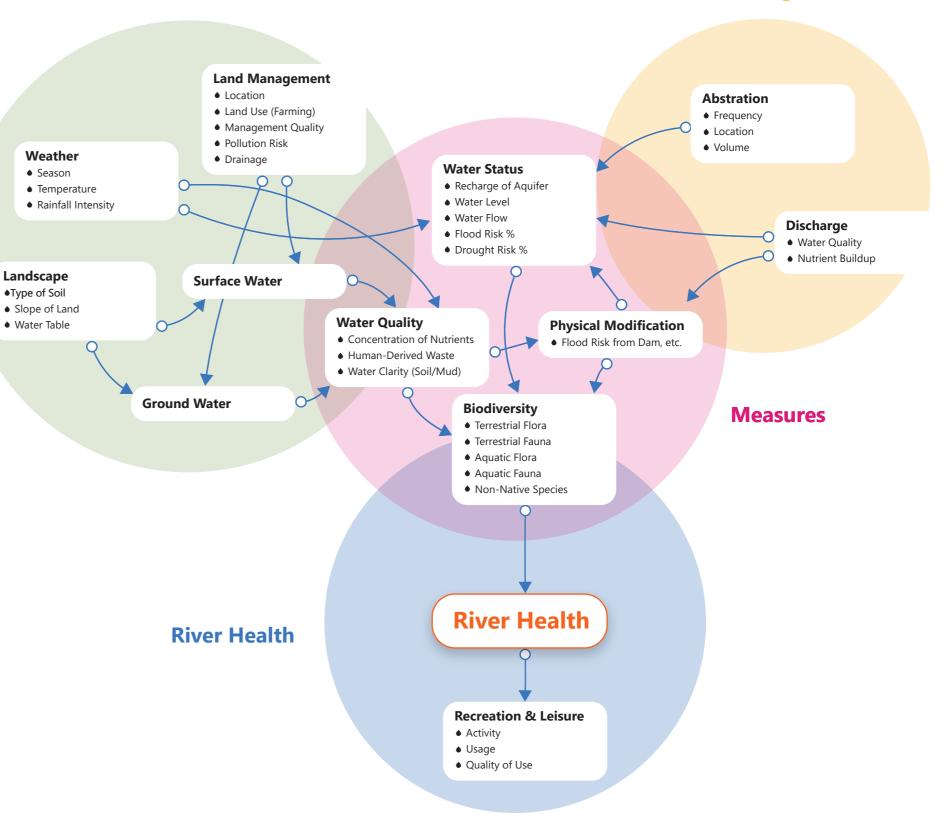
However, data on UK river health is found in many different formats, held across multiple silos and organizations. To make this data usable, we had to unify that data to create a digital twin which would allow us to understand all the factors impacting river health.

Once we have those understood, we can do the following things, supported by technology:

To create an ecological digital twin of this river catchment, we have integrated disparate and varied data sources in a scalable and future-proof Microsoft Azure environment and built a River Quality Data Science Model that allows us to run simulations based on the data flowing through the digital twin.

This enables Anglian Water to drive new solutions to improve river health, streamlining both operational management of the river ecosystems and reducing its carbon footprint.

Learn more about how we can help optimize your data and analytics platforms.

External Factors

Land Management
- Location
- Land Use (Farming)
- Management Quality
- Pollution Risk
- Drainage

Weather
- Season
- Temperature
- Rainfall Intensity

Landscape
- Type of Soil
- Slope of Land
- Water Table

Surface Water

Ground Water

Water Status
- Recharge of Aquifer
- Water Level
- Water Flow
- Flood Risk %
- Drought Risk %

Water Quality
- Concentration of Nutrients
- Human-Derived Waste
- Water Clarity (Soil/Mud)

Physical Modification
- Flood Risk from Dam, etc.

Biodiversity
- Terrestrial Flora
- Terrestrial Fauna
- Aquatic Flora
- Aquatic Fauna
- Non-Native Species

Water Management

Abstration
- Frequency
- Location
- Volume

Discharge
- Water Quality
- Nutrient Buildup

Measures

River Health

Recreation & Leisure
- Activity
- Usage
- Quality of Use

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