SmartRivers

Our progress to date

Powered by WildFish.

February 2025

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We are WildFish.

Healthy rivers sustain thriving wild fish populations. Achieving this requires effective, purpose-driven monitoring.

Without monitoring, there's no evidence. In 2022, the Environment Agency collected nearly a third fewer water quality samples compared to 2019. Monitoring is the foundation of our understanding of water quality - without it, how can we start the long journey toward river recovery?

Independent data is at the heart of WildFish. Our volunteers collect scientifically robust information on the pollution and pressures affecting our rivers and wild fish populations. This data serves as evidence, driving **meaningful action.**

This report highlights the progress achieved and the processes implemented in SmartRivers since its launch in 2019.

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What sets us apart?

In recent years, a surge of water quality citizen science initiatives has emerged, engaging volunteers with their rivers and expanding the evidence base. Among these, **SmartRivers stands out as the highest tier of citizen science invertebrate monitoring.**

We are collaborating with the Environment Agency and the Scottish Environment Protection Agency (SEPA) to explore how SmartRivers data can be integrated into local decision-making processes.

Science

SmartRivers data is an important 'tool in the toolbox' to understanding pressures and delivering change.

The process has been carefully curated and reviewed to make it as comparable to professional monitoring as possible.

Support

Our scientists are always on hand to help. We support our volunteers with bespoke reporting and interpretation of their data.

Unlike other schemes, SmartRivers hubs have access to the WildFish policy and legal team to take their data further if they wish. Working with communities to drive action on the ground.

We provide reliable and professional support, from experts in the field.

What differentiates SmartRivers from other citizen science schemes is robust science and the quality of support we provide.

Our network

Sites registered for monitoring as part of SmartRivers.

122

rivers

covered by SmartRivers monitoring to date

5,752

hours

*of training undertaken by volunteers so far**

**assuming every volunteer does both days of training and eight hours per day.*

243

sites

were monitored through SmartRivers in 2024

Our impact

Cunsey Beck
Location: Windermere

In 2023, Matt Staniek, Director of **Save Windermere**, founded a SmartRivers hub in the Windermere catchment. Matt was concerned by the lack of independent monitoring being conducted in the catchment to assess the impact of downstream of United Utilities' assets on England's largest lake. SmartRivers sites were placed to quantify assess the impact United Utilities' sewage treatment works have are having on the rivers that flow into the lake.

SmartRivers data in 2023 showed that the health of every river sampled in the Windermere catchment was impacted by United Utilities' assets. The abundance of pollution sensitive riverfly species was found to be lower below United Utilities' wastewater treatment works when compared with above (Fig. 1).

Building on the results for Cunsey Beck, in 2024, we used the data to write to the Environment Agency to notify it under the Environmental Damage Regulations 2015, that environmental damage had been caused and that it must order United Utilities to take action to prevent and remediate the damage. We currently await the outcome.

All Windermere data is all professionally collected and analysed.

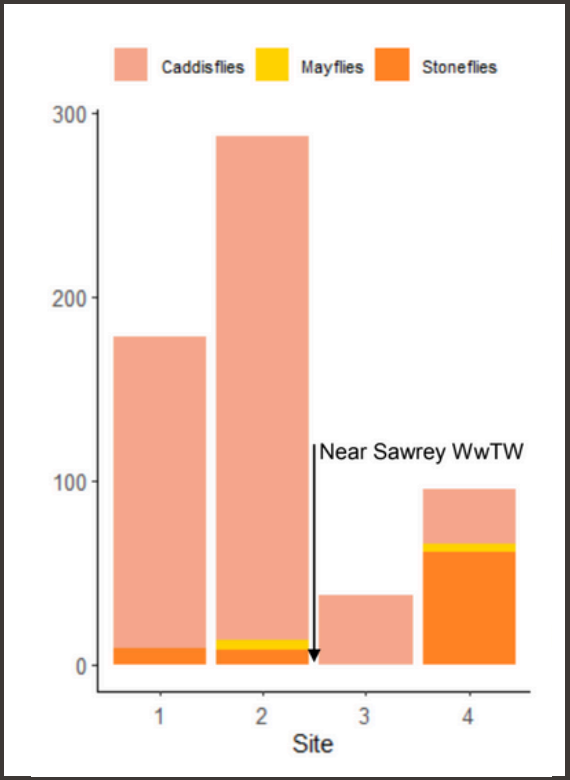

Fig.1: Numbers of pollution sensitive riverflies above and below Near Sawrey wastewater treatment works on Cunsey Beck.

"In the absence of fit-for-purpose regulation and adequate monitoring to assess the environmental harm caused by United Utilities, Save Windermere partnered with WildFish to jointly expose the damage being inflicted at the base layer of the food chain in the rivers of the English Lake District.

The results reveal a chronic impact, highlighting that this issue is not solely about acute incidents but the more insidious, underlying effects of sewage on our freshwater environment."

Matt Staniek, Save Windermere

SmartRivers data enabled us to formally notify the Environment Agency under the Environmental Damage Regulations 2015 about the damage to Cunsey Beck.

Dee catchment
Location: North Wales

Welsh Dee Trust established a SmartRivers hub in spring 2021. They initially monitored the River Alyn, but have since expanded to more rivers in the area. They joined to obtain long term data to supplement water quality and flow improvement schemes.

The data collected so far has shown consistent chemical pressures throughout much of the catchment, particularly in the autumn samples.

We used this data as evidence in a request to the Health and Safety Executive (HSE) to obtain records of pesticide use. These records are held by farmers. The HSE refused our request, but the Information Commissioner has ruled that these records are 'held on behalf of' the HSE. The legal battle for access to these records continues, but we hope ultimately to be able to use them as the basis for regulatory reforms to protect our rivers from pesticide pollution.

Rivers Don/Ouseburn
Location: Newcastle

Tyne Rivers Trust began their SmartRivers journey in spring 2024.

During their first monitoring season, the highly invasive demon shrimp was picked up on the Ouseburn. This invasive species had not been flagged in the river before.

We shared our findings with the local regulator, who launched their own investigation as a result of this. The hub are on high alert and will be keeping a close eye for specimens in their future surveys.

River Teith
Location: Stirling

Following concerns about poor salmon returns, Blair Drummond Estate started a SmartRivers hub in 2024.

They believe barriers are having the most significant impact on the salmon returns, so are using SmartRivers to rule out water quality pressures and food availability for young fish as significant reasons for the decline.

The hub are also running a variety of fish surveys. We are looking forward to examining all this data together to get a better idea of what changes need to be made in the catchment to improve wild fish populations.

Leading with data

SmartRivers data is open access and available for everyone. Whether you're a passionate advocate for your local river or work in freshwater science, this data can help you. To access the data, please contact **smartrivers@wildfish.org**

Hubs receive seasonal reporting from this raw data. These reports contain two main data components.

The data our volunteers collect:

1. Invertebrate diversity and counts

The invertebrate records collected from SmartRivers allow us to assess changes in invertebrate diversity and abundance, to highlight trends and areas at risk (Fig. 2).

The goal for rivers is a diverse invertebrate community comprising a variety of different species with plenty of individuals. This is what will support healthy wild fish populations.

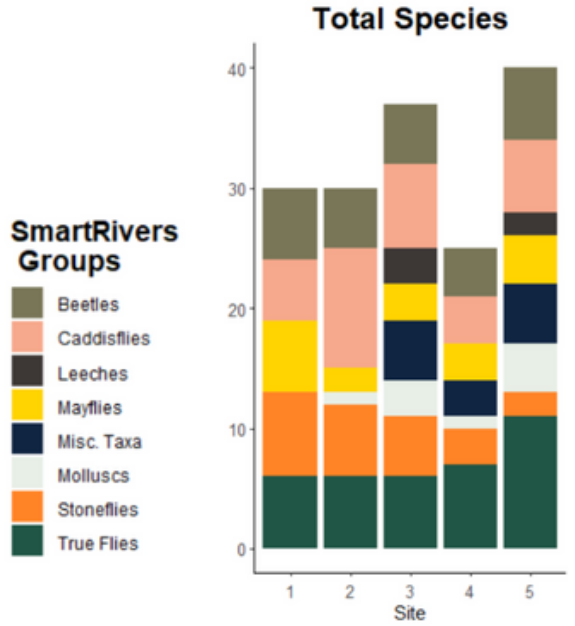

Fig.2: Number of invertebrate species found at 5 monitoring sites, with the proportions of each SmartRivers group.

2. Water quality score cards

Invertebrate species have different tolerances to pollution. Using the list of identified invertebrate species at each site, we generate water quality 'scorecards' grading the impact of five common water quality stress types. The level of stress indicated by the invertebrates is displayed using 'traffic light' colour banding (Fig. 3).

These stress types all impact wild fish populations directly or indirectly one way or another.

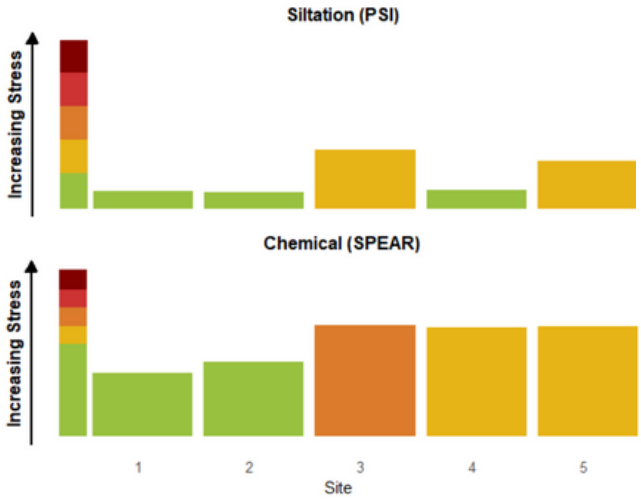

Fig.3: Sediment and chemical impact at 5 monitoring sites indicated by the invertebrates present.

SmartRivers is possible thanks to the tireless dedication of our volunteers, host organisations, trainers and analysts. It is because of them that we can provide scientifically robust data to inform river restoration and drive recovery.

SmartRivers is supported by:

Esmée Fairbairn FOUNDATION

MARSHALL WACE

HIGHLANDS & ISLANDS ENVIRONMENT FOUNDATION

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