Greater Cambridge Chalk Stream Project

Newsletter – May 2025

Reviving Our Rivers Through Evidence, Action & Community

We are pleased to share the first update from the Greater Cambridge Chalk Stream Project (GCCSP), marking a significant period of progress, collaboration, and preparation as we head into the busy summer season. Across the project's six case study sites spanning both rural and urban reaches, monitoring is now underway, partnerships are deepening, and momentum is building towards tangible restoration and research works that will shape the future health of our region's rare and threatened chalk streams.

Building a Scientific Foundation for Restoration

At the heart of the GCCSP's mission is the creation of a robust and meaningful evidence base to guide long-term chalk stream recovery. We are delighted to welcome **Emma Dominic**, recently appointed as the project's Research Assistant and Coordinator, based at **Anglia Ruskin University (ARU)**. Emma is leading both our citizen science programme and the coordination of ecological monitoring across Cambridge, working in close partnership with the City Council, academic researchers, and local communities.

From late June 2025, **weekly water quality monitoring** will begin across all six case study sites. This programme will capture essential parameters including turbidity, suspended solids, nutrients (phosphate, nitrate, total ammonia), dissolved oxygen, pH, flow rate, and *E. coli* concentrations. Using both handheld field meters and **24-hour electrical conductivity loggers**, the data will allow us to track daily and seasonal fluctuations in water chemistry — revealing not only current conditions but periods of ecological stress that can affect sensitive chalk stream species.

The first **citizen science training sessions** are scheduled to begin in **late July 2025**, equipping local volunteers with the skills to collect water quality data, install and monitor sediment traps, assess bank erosion using erosion pins, and carry out fixed-point photography. This collaborative approach will ensure that data is collected consistently and rigorously, while empowering communities to take an active role in chalk stream stewardship.

Ecological Monitoring: Macrophytes and Macroinvertebrates

ARU's Life Sciences Team has now completed the **spring WHPT (Walley Hawkes Paisley Trigg) baseline surveys** across all six case study sites, adhering to the optimal March–May survey

window. This marks a major milestone for the project. The resulting data, which provide essential insights into benthic macroinvertebrate communities and pollution sensitivity, will be **made publicly available in summer 2025** as part of our commitment to transparency and collaborative research.

WHTP surveying by ARU Life Sciences Staff

These WHPT surveys, complemented by **Mean Trophic Rank (MTR)** assessments of aquatic plant communities, offer a powerful dual perspective on ecological health. WHPT indicators help us assess site-specific water quality and biodiversity, while MTR surveys provide insights into nutrient status based on plant composition.

High species richness and the presence of sensitive taxa typically reflect clean, well-functioning systems, while a dominance of tolerant species can indicate nutrient enrichment or other stressors. Together, these metrics provide a scientifically grounded picture of ecological condition and allow us to track changes over time in response to restoration activities.

Tackling Sediment and Turbidity

Sediment and turbidity are among the most urgent threats to chalk stream integrity. GCCSP is working closely with **Dr Tory Milner** of **Keele University**, a leading UK specialist in fluvial sediment dynamics, to understand the sources, composition, and ecological impacts of fine and coarse sediments at each case study site.

Sediment traps are being installed and will be monitored by both trained citizen scientists and ARU staff. These traps will provide data on sedimentation rates, grain size, and composition, enabling us to correlate findings with water quality results and habitat condition. At the same

time, **erosion pins** are being deployed to monitor bank stability and quantify rates of erosion, helping to pinpoint vulnerable reaches and assess the effectiveness of future interventions.

Understanding sediment dynamics is critical for supporting species like brown trout and crowfoots that rely on clean gravels, clear water, and stable hydrological regimes. Fine sediments not only smother habitat but increase turbidity, reduce oxygen levels, and limit photosynthesis — undermining the entire chalk stream food web.

Restoration Design and Delivery

Following a detailed procurement process, **Aquamaintain Ltd** has been appointed to lead on the design and delivery of in-channel and riparian restoration works across both **Cambridge City** and **South Cambridgeshire** project sites. Their extensive experience in chalk stream enhancement — from bank re-naturalisation to in-stream habitat creation — will be critical in shaping high-quality demonstration sites.

In **South Cambridgeshire**, practical restoration works are planned at **Linton Pocket Park** and **Abington Recreation Ground**, in collaboration with **The Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire (WTBCN)**. These works are subject to landowner permissions, the approval of detailed habitat improvement plans, and subsequent environmental permits. When approved, they will serve as long-term 'living laboratories' for restoration, monitoring, and community learning.

James Anderson, Project Manager, Aquamaintain at a site meeting on the River Granta with Ruth Hawksley, Wildlife Trust

In **Cambridge City**, Aquamaintain is leading the restoration designs for **Hobson's Brook**, **Cherry Hinton Brook**, **Coldhams Brook**, and the **East Cambridge Main Drain**, working in partnership with Cambridge City Council, Hobson's Conduit Trust, South Staffordshire Water, and community volunteers. Publicly accessible design plans are expected to be published in **July 2025**, with works beginning **autumn 2025**.

Springhead Protection: Nine Wells and Giants Grave

GCCSP is working closely with South Staffordshire Water to develop a restoration and long-term management plan for the springhead systems at **Nine Wells** and **Giants Grave**. These chalk-fed sources are vital for sustaining flow and water quality in downstream habitats, but they are increasingly under pressure from overgrowth, siltation, and altered drainage patterns.

A topographic survey was completed in spring 2025, and draft restoration plans are expected to be shared in late July to early August. These plans will include proposals for vegetation management and enhancements to existing flow paths, designed to support both biodiversity and heritage value. While natural channel realignment may not be feasible at these sites, opportunities for subtle improvements to hydrological function will be explored. Once the draft plans are developed, further consultation and collaboration will be undertaken with key stakeholders, including adjacent landowners and local community groups.

GCCSP is advocating for springheads and chalk stream headwaters to be treated as priority habitats, deserving of **regular, structured management** akin to that of nature reserves. These sites support highly specialised communities and contribute directly to the hydrological stability of the wider chalk stream network.

Regenerative Farming and Catchment Health

A vital dimension of chalk stream recovery lies beyond the streambanks — within the landscapes that surround and feed them. Inspired by the vision of local farmer Ed Wombwell, a passionate advocate of regenerative farming and community-led business opportunities rooted in sustainable practices, the GCCSP is supporting the transformation of New Shardelowes Farm into a regenerative farming demonstration site. In partnership with Ed, who hosts local landowners as part of the East Cambridgeshire Farm Cluster, this initiative aims to showcase how low-impact agricultural methods can play a vital role in protecting water quality and enhancing catchment resilience.

This 'living laboratory' integrates **rainwater harvesting**, **aquifer recharge infrastructure**, and **low-impact farming techniques** such as cover cropping, reduced tillage, and rotational planting. These practices are designed to improve infiltration, reduce diffuse pollution, and support soil and water health.

Construction milestones achieved this spring include the installation of rainwater tanks, reinforced retaining walls, and pre-stressed concrete pads to support new storage and filtration systems. Forthcoming phases include the erection of the pesticide handling shed, bunded storage tanks, and the final commissioning of water infrastructure by winter 2025.

When complete, the site will model how regenerative farming can protect groundwater, reduce nutrient and sediment inputs, and increase resilience in surrounding chalk stream systems.

Rainwater Harvesting system being built at New Shardelowes Farm

Other Updates

Patchwork Village Education Ponds: Nurturing the Next Generation of Chalk Stream Guardians

The new wildlife ponds in Abington, South Cambridgeshire will be carefully designed to reflect the ecological principles that support healthy freshwater habitats. **Dipping platforms** have now been installed at both pond sites, marking a major step forward in this community-led initiative. These platforms will provide safe, accessible spaces for local schoolchildren, youth nature groups, and the wider community to engage with freshwater wildlife and learn about the importance of chalk stream conservation.

First dipping platform being installed at Patchwork Education Village

The next phase of work will focus on **ecological enhancements** to maximise biodiversity and habitat function. The ponds are being shaped to include a variety of depths — from shallow marginal shelves to deeper central zones — creating a mosaic of microhabitats. Gently sloping banks will support safe access and natural colonisation, while irregular pond contours will help generate varied flow and temperature conditions.

Once established, approximately **60% of each pond's surface will be maintained as open water**, with the remaining **40% planted with native aquatic macrophytes and emergent vegetation** such as water mint, reedmace, brooklime, water forget-me-not, and sedges. These plants will offer vital refuge and feeding areas while helping to regulate nutrient levels and maintain water clarity.

Further works will include the creation of **shaded microclimates** through native tree planting and the installation of **log features** — mimicking the natural shelter provided by riparian woodland in chalk stream headwaters. **Solar-powered aerators** will also be introduced to maintain oxygen-rich zones in the water column, enabling the ponds to support a wider range of aquatic invertebrates and potentially some chalk stream indicator species. Together, these elements will transform the site into a **vibrant, living classroom** — designed to inspire and educate the next generation of river guardians while fostering a deeper connection between communities and their local freshwater environments.

Next Steps for the GCCSP

- Completing baseline surveys and making the data publicly available
- Publishing monthly summaries of weekly water quality data, including logger outputs
- Publishing Cambridge City eDNA results for non-native species
- Training communities in water quality sampling, fixed-point photography, and sediment trapping
- Presenting habitat improvement plans to landowners for approvals
- Collaborating with the Environment Agency Chalk Stream Team to ensure permitting compliance
- Advancing restoration planning for the Nine Wells Springheads

Project News

- GCCSP is currently negotiating to include **electrofishing surveys** across all case study sites as part of the baseline data

- **PhD, MSc, and BSc students from ARU** are undertaking research into chalk stream ecology, with updates from these projects expected later this year
- ARU is setting up a **chalk stream research social media forum** to facilitate knowledge exchange and collaborative learning
- ARU will also be launching a **chalk stream invertebrate photography exhibition** at public venues across Cambridge, celebrating the beauty and diversity of these often-overlooked species

Greater Cambridge Chalk Stream Conference 2025

The Chalk Stream Revival: Uniting Knowledge, Nature, and Community

Date: Wednesday 16 July 2025
Time: 10:00 AM – 4:00 PM
Venue: Anglia Ruskin University, Cambridge
Locations: Lecture Theatre Sci105 & The Atrium

We are thrilled to announce the upcoming **Greater Cambridge Chalk Stream Conference 2025** — a landmark one-day event designed to unite researchers, practitioners, policy-makers, and community champions around the shared mission of restoring and protecting our region's chalk streams.

With a focus on actionable science, integrated policy, and collaborative community approaches, this conference aims to foster cross-sector dialogue, share the latest research, and spotlight exemplary restoration efforts across Cambridgeshire and beyond.

Conference Objectives

- Illuminate the most pressing challenges facing chalk streams today, including sedimentation, pollution, abstraction, and habitat fragmentation
- Share practical tools, case studies, and success stories from active restoration sites
- Promote interdisciplinary discussion across environmental science, land management, water policy, and civic engagement
- Celebrate the growing role of citizen science in shaping evidence-based stewardship

Core Themes

- **Sediment and Turbidity**: Ecological effects and mitigation strategies from site to catchment scale
- **Aquifer Pressures**: Exploring the role of abstraction, urban growth, and land use in altering baseflow and water quality

- **Spawning Habitat Recovery**: Using science-led approaches to restore gravels and support brown trout populations
- **Emerging Pollutants**: The rising impact of microplastics, PFAS, and metals in freshwater environments
- **Macroinvertebrates as Indicators**: Leveraging invertebrate communities to detect stressors and measure change
- **Macrophyte Resilience**: How fine sediments, nutrients, and light limitation affect aquatic plant communities
- **Citizen Science & Monitoring**: Enabling long-term data collection through community partnerships

What to Expect

Attendees will gain exclusive access to:

- Insightful keynote presentations from leading researchers and practitioners
- Detailed case studies from the Greater Cambridge region and beyond
- Interactive Q&A sessions to delve deeper into challenges and solutions
- Opportunities to network and share ideas with peers across sectors

Event Format

- **Two tea breaks** and a **catered lunch** included
- **Talks in Lecture Theatre Sci105**
- **Networking and refreshments in The Atrium**
- **Informal discussion session after the final talk**

Coming Soon

The **full agenda and speaker line-up** will be released shortly.

Places are limited —to pre-book a place contact: **nature@cambridge.gov.uk**

Other News

Cambridge Scientists Uncover Road Sediment Threat to Chalk Streams

A pioneering collaboration between Dr Steve Boreham (WildReach), Hobson's Conduit Trust, and Mike Foley (Cam Valley Forum) is revealing the overlooked impact of road-derived sediment on Cambridge's chalk streams. Their analysis of kerbside sweepings from locations such as

Shelford Road and Addenbrooke's Road has uncovered high levels of ammonia, phosphate, magnetic vehicle residues, and fine particles — all easily washed into rivers after rainfall.

"These pollutants increase turbidity, deplete oxygen, and disrupt the fragile balance of chalk stream ecosystems," says Dr Boreham. With street cleaning and gully pot maintenance scaled back in parts of South Cambridge, more of this untreated runoff is entering streams unchecked.

The team has also field-tested the Hanna HI1988594 multi-parameter water quality meter — now adopted by GCCSP — to monitor pH, dissolved oxygen, conductivity, and turbidity across urban and rural sites. Early results show a clear pattern: crystal-clear headwaters near Ashwell Spring degrade steadily downstream, with turbidity peaking at 60.4 FNU just 7.4 km away.

GCCSP's full sediment analysis will be released soon, but this community-led research is already shaping how restoration is approached: catchment-wide, pollution-first, and grounded in evidence.